The Builder.

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The Architectural Conference.

FOLLOWING up our previous notices, we have to say that the meeting held on Thursday, the 25th of May (after the interval of a day allotted for the benefit of those wishing to attend the "Isthmian games"), for the consideration of constructive and scientific subjects, turned out one of the most interesting as well as practical of the series. Professor Donaldson took the chair, and in a short address alluded with sorrow to the destruction of the public monuments in Paris, expressing his conviction that she would again rise from her ruins grand and glorious as ever. He then proceeded to treat of the various materials employed in the art and science of construction, the warming and ventilating of buildings, and other matters connected with building and the business of the architect.

Mr. Fowler initiated the proceedings of the printed programme by reading, in the unavoidable absence of Professor Lewis, that gentleman's remarks in regard to the construction of fire-proof floors. He drew attention, in the first place, to the different conditions under which fire-proof construction had to be carried out in warehouses as contrasted with private houses; the latter containing usually only a small proportion of readily-inflammable materials, while the former were often closely packed with materials of such a nature and in such quantities as to give rise, when inflamed, to a heat so intense as to melt iron and even vitrify brickwork. Dwellings might be made to a great extent fireproof by the use of solidly-pugged floors, even between wooden joists; but, of course, more effectually with iron joists, provided the latter were carefully shielded from the immediate action of the flames by a good coat of plaster below, rendered on the pugging so as to combine with and form a solid mass. The difficulty, practically, in this case, was to bring the pugging down to a low enough point between the joists to enable the plaster to be rendered up to it; some other means of supporting the pugging than the usual fillets nailed between the joists would be requisite. The thin scantlings used in modern house floors and roofs were very prejudicial to the attainment of fire-proof qualities; a thick joist might be charred over its external surface to some depth without losing its bearing capability, while a thin one would soon lose all its bearing substance under the same circumstances. Stone must be looked upon as one of the very worst fire-resisting materials, cracking and splitting in all directions under the action of heat; he had even known a case where stone stairs were totally destroyed, while the landings, which happened to be of timber joists and pugging, were left practically uninjured. In warehouses iron, too, must be looked upon as a most prejudicial material, if in such a position as to be exposed to the direct action of flames, as the great heat often generated in a burning warehouse causes the iron to twist and expand and assist in the destruction of the walls. On the whole, he believed no construction was so near being entirely fire-proof, for warehouses, as simple brick walling and vaulting, which would resist a heat such as no other building material could survive. Mr. Fowler followed with a paper of his own on "Fire-resisting Materials, with reference to the new Building Act." The materials regarded by the Act as "fire-resisting" were the hardest timbers, as oak, teak, &c.; slate and tiles; flag stones when used as a pavement with a vault and solid backing under them; granite and stone. These two last could not be regarded as *constructively* fire-resisting. The same remark would apply to slate. A mode of preventing the spread of fire was suggested in the straining of iron wire under the joists, with concrete on it between the joists and plaster on the under side. The cost in excess of ordinary timber flooring had been estimated at about 35s. per square. Mr. Fowler brought forward also a specimen of new fire-resisting construction for beams and bearers, manufactured by Messrs. Allen & Sons. This consisted of a cement concrete formed of a small proportion of Portland cement, and a considerably larger quantity of breeze, worked up into the shape of a kind of concrete joist with a stiffener of thin plate-iron in the centre. From the effect of the concrete in always keeping the plate of iron precisely on edge in the direction of its greatest strength, a very thin piece of iron might be depended on for giving a great amount of stiffness. Only 10 ft. or 12 ft., however, were named as the maximum bearing for a joist of this kind; and as the ends of these must rest on some larger (probably iron) beam, the question of stability of the construction against fire seemed, after all, to turn on the manner in which the main beams, which must be of some more tensile material, behaved. This point was either overlooked or not made by any means clear by the lecturer. Mr. C. Barry read a communication from Mr. Groves, explanatory of a method of constructing fireproof floors and ceilings by fan-groining in cement-concrete. Apparently, however, this could not be, in a strict sense, entitled groining, any more than some so-called arched concrete floors can be called "arches:" they are only concrete worked into the form of an arch or groin, but owing its stability to totally different causes from those which affect an arch. Mr. Hornblower explained the fireprcof-floor construction invented by Mr. Cunningham, of Liverpool, which consisted of a series of sheet-iron joists, twisted into flanges the opposite ways, at top and bottom, and placed close together so as to form, in fact, a row of tubular hollow joists, upon which a concrete floor was laid. It had been tried, and made a very good floor. The objection raised by another speaker as to the possibility of unforeseen oxidation of the iron, in a situation where it could never be inspected, was not, however, without weight. Mr. Aitchison thought iron doors, when properly hung and bolted, and especially if double, would generally be found efficient in resisting the action of fire, and that cases of such doors crumpling or bending from the heat were owing rather to the way in which they were hung and fastened than from direct action of the fire on the doors themselves. He confirmed the opinions which had been expressed as to the durability of brick under fire, which he had seen stand where granite would not. Neither slate, terra-cotta, nor cement could be depended on. He had seen piers of the latter material crack and give way just like stone. As a coating, lime gauged with plaster of Paris, would stand without cracking. He also suggested the use of an iron jacket round columns, with an air-space between, as a preservative of iron columns against fire. Mr. Parker thought the nearer we came to the Roman system of building the more proof would our walls be against everything that might tend to disintegrate them. Messrs. Allen's system of fireproof joists, brought forward by Mr. Fowler, was substantially the same as the Roman system of using thin tiles, imbedded in concrete. Subsequently Mr. Aitchison followed with a paper on the progressive use of iron in building, the general aim of which was to advocate the increased use of iron in modern buildings, as essentially the modern material of the architect, to be adopted and made use of by him in the best and most artistic manner possible; urging that the Mediæval builders, whom so many of us were now professing to copy, would have done the same had they possessed the knowledge and means for working iron on a large scale, and as the constructive basis of buildings. The constructors of such works as the Crystal Palace and some of the large modern railway station roofs were the really modern Mediæval architects, taking the same place in regard to the present day that the builders of our cathedrals occupied in the thirteenth century. That to imitate the style of Mediæval buildings is to act on a principle directly contrary to that of the Mediæval architects themselves we have often pointed out; but as to what they might possibly have done with iron, we can only say that had they used iron roofs, for instance, in those days, it is very probable that we should know nothing of it now, inasmuch as no trace of them very likely would be left; and Mr. Aitchison and others who use this kind of argument about iron forget that, whereas wood and stone are natural substances, used by us without any chemical or mechanical alteration in their nature, and merely shaped to the desired form, iron is in comparison an artificial substance, which undergoes important changes in its composition before being ready for use in building, and that therefore we have no *a priori* assumption in favour of its enduring qualities, while all experience so far (short as it is), goes to show it as a most capricious and untrustworthy material, requiring great care, and frequent examination even to ensure it lasting *in statu quo* for the limited time which any iron construction has as yet survived. Whether the rapid changes in the conditions of modern life and property may be such as to render unnecessary and useless anything like monumental endurance in buildings, is a question which may be fairly put, but which we trust may be answered in the negative. In reference to this subject, we cannot but concur with Mr. C. Barry, in feeling somewhat tired of hearing the Crystal Palace constantly mistakingly cited as an example of scientific iron architecture. In his paper on the strength of certain building materials, Mr. Barry gave some very valuable schedules of the results of sundry experiments on the strength of terra-cotta, bricks, and cement, which will, doubtless, be published; the results of experiments on the first-mentioned material, in regard to resistance to crushing weight, were remarkable, showing a power of resistance, seven and a half times greater than that of an average brick. In reply to a question, whether he had ever known bricks to be crushed in a lower portion of a wall, by the mere weight of the superstructure, Mr. Barry replied in the negative, except with regard to one instance when, from partial subsidence in the foundations, the bricks in the lower portion of a wall were exposed to an unequally-distributed pressure on certain points; but this might be looked on as an exceptional case. The matter was further discussed by Mr. Mackinnon, of Monte Video, Mr. Hall, Mr. Wyatt, and Mr. Parker; the latter, alluding again to the method of construction adopted by the ancient Romans. Some details

given by the same speaker, with regard to the operation of a gas cooking-stove, on what was said to be a new principle, were felt to be not quite in place at such a meeting; besides, that the principle described was not altogether new, though some of the mechanical details might be.

Mr. Wonnacott's short paper on the "Use of Concrete as a Substitute for Stone in Walling," was a valuable and very sensible communication; not the less so that the author did not fall into the error of claiming for concrete more than its real value, as a substitute for stone in certain special cases. Its use must be regarded as a practical, not an artistic expedient: the best and most durable concrete for the purpose, he said, would be that made in about the proportions of 1 of cement (Portland) to 7 of gravel and sand; clay or loam was fatal to its stability. The walls should not be too thin; by building them thin it might be possible to construct them at a cost of 12s. per cubic yard, but a well-built, substantial concrete wall could not be had at a less cost than 18s. or 20s. Estimates put out for public information on this head were very delusive in many cases, and tended to mislead persons about to build in concrete as to the price; such estimates being commonly given independently of the cost of apparatus, &c., which might add a considerable per-centage to the amount, especially as the moulds are soon worn out and require replacing. The material was in the highest degree damp-proof and water-proof; but its occasional partial disintegration in chimney-stacks showed that it was not altogether uninfluenced by the action of heat and smoke. Sounds, moreover, were very distinctly heard from one room to another of a concrete house. It could scarcely be recommended for localities much exposed to severe frost. Every wall should be rendered in cement externally, and the chimneys pargetted inside as in a brick house. On the conclusion of Mr. Wonnacott's paper, Mr. E. W. Tarn read some remarks on the subject by Mr. Blomfield, who thought that cement concrete should not, or need not, be looked on as a "sham," but was a good and useful building material when rightly treated; among other points he suggested that, as a concrete house was necessarily built in several stages, owing to the necessity for raising the apparatus from time to time, the masking of these stages by the use of a differently tinted cement or a differently finished face should be made a part of the design, which might on such a system of treatment be as truthful a construction in its way as brick or stone. Mr. Tarn corroborated, from his own experience, the statements made by Mr. Wonnacott, and alluded to the exaggerated assertions made by patentees of concrete building machines as likely to prove a hindrance to its adoption. A short discussion on the subject brought this very interesting and practically useful meeting to a conclusion.

The dinner on Thursday passed off satisfactorily. The president of the Institute occupied the chair, and discharged its duties agreeably and well. Colonel Scott (of Albert Hall) returned thanks for the army; and Mr. Vignoles, president of the Institution of Civil Engineers, who spoke vigorously, and said he was over eighty, for the volunteers. Professor Kerr discoursed at some length with reference to the Conference generally. Mr. Beresford Hope, with much geniality, gave the health of the chairman. Sir Digby Wyatt proposed Art and Literature, calling upon Mr. Burges and Mr. Godwin, who both responded. Mr. Owen, of Dublin, spoke for the architects of Ireland, and Mr. Charles Barry, Mr. T. R. Smith, and others, had each congenial themes. Besides those already named, we noticed Mr. Blomfield, Mr. D. Brandon, Mr. Talbot Bury, Mr. Cates, Mr. Christian, Mr. T. C. Clarke, Mr. Currey, Mr. Cockerell, Mr. Edis, Mr. Benjamin Ferrey, Mr. J. H. Hakewill, Mr. P. C. Hardwick, Mr. Hayward, Mr. Heaketh, Mr. Jennings, Mr. Horace Jones, Mr. Marrable, Mr. C. C. Nelson, Mr. Papworth, Mr. Roumieu, Mr. Slater, Mr. S. S. Teulon, Mr. Statham, Mr. Worthington, Mr. F. R. Wilson, Colonel Chesney, Mr. Henry Shaw, M. Arles Dufour, and many more whose names, as we are writing wholly from memory, have escaped us. In a figurative kind of way, every one shook hands with every one else, and all went merry as a marriage-bell.

There was an adjourned meeting on Friday morning, not part of the original programme, but which will certainly have to be so on another occasion; for as the intermediate meetings subsequent to the general opening one were nominally "sectional" meetings only, for the consideration in each case of a distinct class of subjects, to which the programme was limited, it seems a *sine quâ non* that there should also be provided a general closing meeting, when the sense of the general Conference can be taken, and the conclusions come to at the sectional meetings put into form and ratified. Owing to a tacit feeling of the necessity for such a gathering the Friday morning meeting was called, but not very numerously attended, partly in consequence of the want of time and opportunity to communicate with all the members, who could only be informed of the appointment and time of the meeting by a notice posted in the room. The president of the Institute resumed the chair, and after a good deal of desultory discussion, in the effort to arrive at some definite line of action, it was finally resolved that the Conference should meet again at about the same time next year; it being left open to decide on that occasion whether the future meetings should be annual or not, and where they should be held. In regard to the subjects which had been specially before the meeting, it was resolved that the question raised as to professional practice and charges be referred to the professional practice committee, with the addition of Mr. Watson and of Mr. Hine, the president of the Architectural Alliance. The question as to competitions to be referred to a committee of five, consisting of three representatives from the three branches of the Institute (Council, Fellows, and Associates), one from the Architectural Alliance, and one from the Architectural Association. This committee to fully consider the subject of competitions, and be prepared at the next conference, to submit to the meeting a form of conditions, approved by the Institute, on which alone all architects connected with, or recognising the Conference, should be willing to compete. At the suggestion of Mr. Seddon, Mr. Douglass Mathews was appointed as an additional member on the first committee (professional practice), to correspond with, and obtain the views of, the provincial architectural societies, and represent them at the committee, and Mr. Spiers was requested to undertake the same task in conjunction with the members of the committee. The question as to the taking out of quantities and the employment, and remuneration of surveyors for so doing, and other matters connected with this subject, also to be referred to a committee of five, to whom were added Mr. A. Cates and Mr. Rickman, as surveyors, to assist the deliberations of the committee. On the subject of education it was resolved that it was not desirable to take any further step at present. Mr. E. Sharpe caused some amusement by bringing forward a proposed rule for the regulation of perspective drawings in architectural competitions, contending that such drawings should in all cases be admissible, but only under restrictions; that one colour only be used; and that all "horses, dogs, carriages, &c." be disallowed in the drawings, and that any human figures introduced should be on the correct scale, and not be falsified in scale in order to exaggerate the size of the building. After some little discussion, however, it was decided that the point could not be argued on that occasion, but that it be referred to the competitions committee.

Votes of thanks were then unanimously passed to the President of the Institute, Mr. T. H. Wyatt, for his address, upon the motion of Mr. Thompson, of Glasgow, seconded by Mr. Hine, of Nottingham; to the committees of sections, proposed by Mr. F. R. Wilson; to Mr. C. L. Eastlake, the secretary of the Institute, who worked hard throughout to ensure success, proposed by the President; and the meeting was then declared officially closed.

At half-past two, on the same day, about fifty members of the Conference assembled at the Albert Memorial in Hyde Park, where Mr. Coad exhibited the working drawings, and explained the construction from the foundations to the summit, and by means of large photographs of the monument in its present state propounded the whole scheme of its decoration. Mr. Skidmore explained the principal features of the metallurgic ornamental decoration. The party then entered the temporary wooden sheds which shelter the marble workers at the base of the monument, and Mr. Armstead and Mr. Phillip exhibited and explained, respectively, the groups which they were executing on the podium.

At half-past four the members crossed over to the Albert Hall, where they were received by Colonel Scott, who, in his study, explained, by the working drawings and diagrams, the various phases which the building had gone through, from the time when the form of it was first designed by the late Captain Fowke, to be straight-sided with curved ends, until it had assumed the oval shape finally designed and carried out by himself. Colonel Scott then described the difficulties which beset him in securing good acoustic properties for the Hall, explaining that after adopting wood linings for the walls and for the coves of the ceiling, in preference to all other materials, with success, he found it necessary to provide a velarium below the glass and iron roof. Experience of the velarium had proved to Colonel Scott that the linen of which it was composed was too thin: he had therefore starched it, and intended to starch it again, and finally to iron it. After describing the various schemes he and others had proposed for the iron roof, Colonel Scott explained that though he considered the light iron web-like form finally adopted was the best, yet if he had to execute it again he would put half the amount of iron into it. After ascending by the ladders the parapet of the hall externally, and entering and examining the iron roof above the velarium, and descending to the vaults to inspect the steam bellows and apparatus for the organ, the members, before leaving, passed a hearty vote of thanks, on the motion of Mr. F. R. Wilson, as president of the Northern Architectural Association, to Colonel Scott, for his great courtesy to them.

The members then dispersed; and thus the Conference of Architects for 1871 was pleasantly and finally closed.

We commented last week on the necessity of holding the Conference annually in order to make it of much real service, and were glad to find the meeting, since those remarks were written, taking the first step to a similar conclusion, by deciding on calling one next year. The second conference will probably be better attended, and productive of more practical result, than the first. Those with whom the management rests will see their way better by the experience of this occasion; and we should suggest that next year fewer subjects should be undertaken, and a longer time given to each, instead of running over such an extent of ground within limits as to time, which only left opportunity for a few hasty remarks from each speaker. Other points for improvement will, no doubt, suggest themselves, especially with reference to the press; but in the meantime the Conference has been a very fair success so far, if only as the means of making the *premier pas* towards a better "solidarity," as the French say, among the architects of this country.

BUILDING APPLIANCES AT THE INTERNATIONAL EXHIBITION.

SOME large and well-considered machines for the manufacture of bricks and tiles are to be seen in an annex to the Eastern Gallery. This range of halls, as our readers are aware, is chiefly filled with numerous, and we may almost say glorious, specimens of the art of the potter. The power of man to give permanently graceful form to such a material as clay, to tint it with the richest hues ever produced by art, and to clothe it with the lustre of jewelled enamel, or the very iridescence of the pearl-shell itself, has never been more admirably illustrated than in the present Exhibition. It would be hard, indeed, to award the palm among the four or five English manufacturers who contend in such noble emulation. A blue ovoid vase, painted with Cupids, by Minton, is one of the products of which the memory lingers the longest in the mind. An exquisite case of cabarets, or small *déjeûner* sets, one in royal blue, jewelled and gilded, and others painted in rose and other tender colours, is, perhaps, the most attractive of any in the inner gallery. Without, in the arcade, the specimens of the application by Messrs. Doulton of pottery to industrial purposes are so numerous, and so excellent, as to teach us that our manufactures are not altogether dependent on our supply of iron. That our ceramic manufactures should, since 1851, have made such giant strides in two opposite directions, attaining a delicacy and beauty equal to that once special to Dresden or even to Royal Sèvres on the one hand, and a strength, solidity, and pliancy of form equal to that of the best castings of Staffordshire, on the other hand, is a subject for national pride, and for honest self-congratulation.

The first detail that commands the profound attention of the builder we take to be the machinery for the manufacture of bricks and

tiles. Two or three machines for this purpose demand careful attention. We fail to find them in their proper place in the catalogue, the involved perplexity of which document is a matter of general lamentation. Nor are they at work in such a manner as to enable a judge to speak positively as to their respective merits. But it is evident that great thought and great skill have been applied to the design and the execution of this powerful machinery. The clay, as to the mechanical tempering of which we have now little difficulty, is forced into form by powerful screws, — archimedean screws they would be naturally, though not quite correctly termed,—it is carried forward on revolving bands, it is cut by wires. In rapidity, in certainty, in solidity, and thus in economy, of work there can be no comparison between the mechanical process of brickmaking and mere human labour. The latter, as we have before had occasion to remark, is perhaps the most brutalising process carried on by man in connexion with industrial art; at the same time it is one in which the vested interest has been defended with a more reckless and savage persistence than has been the case in almost any other branch of productive industry. No one who visits the South Kensington Exhibition can doubt as to the ultimate triumph of the mechanical mode, a triumph as much to the advantage of the wretched brick-moulders themselves as to that of bricklayers, builders, and occupiers of houses; but which the former are far from regarding in that light.

With the brick-making machines proper are to be seen simple and elegant machines for the production, by pressure, of encaustic tiles, and of tesseræ for mosaic in terra-cotta, fit for the furnace. The perfect accuracy of these little engines, and their ready obedience to the hand of the workman, are little less than magical. Close by is an apparatus which has attracted a larger number of admiring spectators than perhaps any other exhibit within the building. It is the oldest human invention, so far as history, or as these relics which are the materials for history yet unwritten, teach; and, although even recently it has received no inconsiderable improvement in detail, it is still wonderfully simple. There is nothing in which the mathematical and the casual, the mechanical and the artistic, the rigid action of the machine, and the every-varying skill of the designer, enter into such equal and intimate partnership as in the case of the potter's wheel. A skilled workman, who has for years been in the employ of Mr. Doulton, charms all who watch his ready fingers by the magic swiftness with which the whirling clay obeys his touch, and the more than theatrical transformations caused by the toil of himself and his boy. It would not be at all unworthy of the directors of the Exhibition if a small collecting-box were placed in the neighbourhood of the potter's wheel, to enable the many visitors who would rejoice in the opportunity to throw in an obolus by way of acknowledgment of the cheerful civility and steady industry of Mr. Doulton's workman. It is hard for a man to give so much pleasure and so much information to so many people merely for his modest day's wage.

The manufacture of a short, straight, glazed tobacco-pipe, by merely inclosing a bit of clay, roughly modelled into form, in an oiled mould that closes with a hinge, pushing down a thumb-shaped plug of steel that hollows the bowl, and pushing forward a horizontal needle that pierces the stem, is another process that exerts a strange fascination over visitors. The readiness, nay, eagerness, of the English public, to educate themselves by the eye as to manufacturing procedures, is amply illustrated at this part of the galleries.

The visitor to the Exhibition, having passed the ugly passage (temporary, we trust), which is not the more agreeable for being called "The Fernery," enters a sort of vestibule, which may be said to be devoted to mourning the absence of French contributions, and the obliteration, for the present moment, at all events, of that part of the map of Europe of which the title,—Kingdom, Republic, Empire, Kingdom, Republic, Empire, and so on *da capo*, has been undergoing a cycle of eighty years of change. A very graceful piece of sculpture,—a half-draped, seated girl, contemplating a cameo, might be taken to represent the mourning genius of French art. There is a yet more pregnant satire in the figure, admirably executed in bronze, of the "*Cigale qui avait chanté tout l'Été*" of La Fontaine, the winter-caught wayfarer, drawn with such pathos by Gustave Doré, in his illustration of the fables of the French Æsop. An admirable, though realistic, figure of a Savoyard boy, in the same material, stands next. Then come two busts, executed, it is true, with marvellous skill, and admirable simulation of life, but the proper locality for which is that presided over by Madame Tussaud, and not a gallery sacred to the fine arts. Having passed the spot where France is thus so conspicuous by her absence, we enter on the Eastern Arcade, filled, or rather lined, with specimens of various works in terra cotta, at its southern end.

To fish out the items in this interesting arcade from the troubled waters of the Official Catalogue is scarcely possible. Every distinct catalogue-writer seems to have followed his own plan, or his own no-plan, of arrangement; and the articles themselves have been placed rather as furniture in a room than as exhibits in a museum. In English sculpture, for instance, while the objects are scattered widely over different galleries, the numbers which indicate them are arranged in the alphabetical order of the artists' names. But we find no such rule to hold in pottery, nor does there seem to be anything but haphazard in the order, or no order, followed. Neither are the tiles, when found, descriptive.

The first specimens of structural and decorative terra-cotta that strike the attention in the East Arcade come from the manufactory of Messrs. Doulton, of Lambeth, contributors who are numerically the first of our English potters. Moulded bricks and architectural dressings of every kind; tazzas, vases, and statuettes for garden decoration; medallions for insertion in walls; ornamental chimney-pots for the service of those slovenly architects who build, as is the custom of our country, chimneys that smoke two ways, viz., into the outer air and into the rooms;—all these are furnished by Messrs. Doulton, in clay of a very agreeable colour and texture. Wall copings and cornices, air-bricks, pedestals, terminals for walls, a fountain enlivened by models of cranes, flower baskets and pots, key-stones, pier caps, balusters, ventilators, and window-heads are among the objects as to which, in our climate, the pottery of Messrs. Doulton will very advantageously replace stone. Between those products of greediness and scamping which are now euphuistically termed bricks, and burnt clay such as this, there is almost as much difference as between the amorphous and the crystalline forms of carbon, the anthracite and the diamond.

The Watcombe Terra Cotta Clay Company exhibits articles of a somewhat similar nature to those produced by Messrs. Doulton. This company possesses both a light-coloured and a full red clay; and by the combination of the two materials very good effects may be produced. It seems that the clay of the Watcombe Company is susceptible of a far more delicate and artistic treatment than their moulders generally have known how to apply. In confirmation of this view may be observed some specimens of flowers, modelled with more than Oriental patience, which contrast with the rather unfinished surface of some of the medallions. Some fine bold specimens of terra-cotta from Prussia, follow next in the arcade, but will be sought for in vain, or at least have been sought for in vain, in the catalogue. Then follow some good samples of what is called glypto terra-cotta, in which an incised pattern has apparently been produced by pressure, from the Whitwell Colliery, also a desideratum in the catalogue. The ferro-metallic clay, for architectural roofing and ridge tiles, specimens of which are exhibited by Thomas Peake, resembles cast iron in hardness and colour, and no doubt enormously exceeds it in durability, as incapable of rusting. It resembles those productions of our earlier brick-fields, of which it used to be said that they would last for ever, and mend the roads afterwards. Air bricks of a new design, vases, pedestals, and other objects, in red and white terra-cotta, are exhibited by James Stiff & Sons, as also highly vitrified chemical apparatus, sewer pipes, chimney finials, and a covered hospital chest in wooden case, with water lute cover. Similar objects are exhibited by W. J. Holland & Co., of a very delicate white clay. The specimens, however, have either been treated with neglect, or there is some element in the clay which spoils the purity of the work. A good collection of works in terra-cotta is exhibited by James Pulham. Among them is one, not to be found in the catalogue, which possesses great beauty, and special interest for the builder. It is a built window-setting, in moulded blocks of white terra cotta, equal in appearance and superior in durability to most stone used for similar purposes, and ornamented by a mask and conventionalised floral ornaments, executed with unusual taste, as well as skill, in a red clay. It should be compared with another, of numerous mouldings, returned in a round-headed arch, with a mullion pillar of terra-cotta and two small internal semi-circular heads, executed in cut or moulded brick. This pretty little window is from the Farnham works.

The Patent Plumbago Crucible Company exhibits Morgan's patent crucibles for melting and refining metal, and nests of round and triangular clay crucibles for refining and gold-beaters' use. There are also melting and muffle furnaces, and flint-glass crucibles. Some gas-retorts, of ribbed fire-clay, manufactured by the Farnley works, near Leeds, are very noble specimens of the potter's art. There are some good glazed bricks from the same makers. We do not find in the catalogue, or even in the index, the name of Chance Brothers, the well-known glass-makers, who exhibit not only specimens of their retorts, but samples of the "pot earth" of which they are made. This juxtaposition of the raw material and of the manufactured article is of the utmost value, in an educational point of view, as regards the instruction of intending colonists, or persons interested in developing the resources of new districts of country. For the other articles, the excellences are so varied, and so equally balanced, that in most cases the question of carriage will determine that of supply. But we cannot doubt that the stimulus that will be given, by the concurrent opening of the graceful new building by Mr. Waterhouse, and of this fine collection of architectural objects in terra-cotta, to the employment of that material in domestic architecture, will be both immediate and permanent. Good specimens of terra-cotta are also sent from Bridgwater, from Norwich, and from Ipswich, to which the catalogue fails to give proper reference. Their use will be chiefly local, except in the case of the very excellent moulded bricks for chimney-stacks, after the fashion which prevailed in England from the reign of Elizabeth till the commencement of the last century, when the great storm overthrew so many of these structures that the comfort of our domestic architecture has ever since been seriously diminished, this important feature of a house having then apparently gone out of fashion. These bricks are from the Norwich firm.

Attention will be given to a concrete wall, known as Parr and Strong's Combination (names not in the index) in which a hexagonal brick with a circular opening in the centre, is filled with concrete, and the surface of part of the wall is rendered with one, or with two, coats of Selenitic mortar. A short description of materials and statement of cost, ought to be printed and annexed to any specimen of work that is at once so original and so deserving of notice as this. The system, our readers will remember, has been illustrated in our pages. We must recommend those who visit this arcade for the purpose of selecting terra-cotta manufactures, to use their eyes with diligence, and not only so, but to make full notes of any as to which they wish to make any further inquiry.

Among the decorative terra-cotta for architectural purposes in the arcade, is arranged a collection of can-shaped bottles, ale-bottles, jars, and similar specimens of stoneware for commercial purposes, chiefly supplied by Messrs. Bailey, of Fulham, Messrs. Doulton, and Messrs. Stiff & Son. They may all be of equal excellence, although for beauty they follow the order in which we have arranged them. The Fulham stoneware is of a particularly good tint. We suppose that it comes from clay that bears some relation to the source of the famous old Fulham china. For all liquids that can be satisfactorily kept in earthenware, these skilful manufacturers appear to have provided appropriate vessels.

Before passing to the interior of the gallery, which is chiefly devoted to domestic pottery and porcelain, we must cross, if we continue our observations of the principal features of the Exhibition illustrative of architecture, to the opposite side of the quadrangle. In the space to the west of the Western Gallery, in which are to be seen the engines that give action to the shafting within that series of apartments, is a wooden building, approached from the machinery-gallery, which is a full-sized model of a school-house, adapted for small country villages, as erected in Sweden. It was designed for this exhibition by P. J. Ekman, and manufactured at his joinery-works at Stockholm. It is admirably

suited for the purpose for which it is intended. The joiner's work has a lighter and more highly finished character than is ordinarily to be found in countries where, under a severe climate, rough timber forms the main bulk of most of the buildings. The Royal Swedish Commission has filled this species of Swiss cottage with models and examples of school-fittings and furniture. There are desks for the pupils, diagram-boards for the masters, and apparatus for teaching of every description. A careful examination will well repay the expenditure of the time it demands, to all those who take practical interest in the education of the young.

On the same side of the Gardens, but in the gallery leading to the refreshment-room, is to be found a model which possesses special interest for ourselves, and also, we trust, for our readers, as being an attempt by an Italian inventor to carry into effect an economy of that enormous force to which we some time since called attention (when the question of the exhaustion of our coal mines was under discussion), as an illimitable source of motion and of calorific power. The model is called the flux-motor. The inventor, or at least the writer of the little illustrative pamphlet, is Ferdinando Tomasi. The invention is stated to be patented in England, France, &c., &c., the countries indicated by the two et-cetera being left to the imagination to supply. There is no doubt that we have here the nucleus of a very elegant and meritorious invention. The mode in which the tidal force is rendered available for motive power is by the compression and exhaustion of air. The little pamphlet which illustrates the model, and which contains a lithograph of the apparatus, although not written in Italian, can hardly be said to be written in English, and the explanation has some need of being explained.

The idea, however, is this. At any convenient spot near the sea-shore, in districts where the tide has a certain degree of rise and fall, a closed reservoir is to be constructed of iron or of adequately strong masonry, of which the bottom is at, or a little below, dead low-water mark, and connected with the sea: the top is level with the extreme high-water level of the spring tide, and a horizontal division or diaphragm is constructed half-way between the two. A vertical pipe or pipes pass through this diaphragm to near the bottom of the lower compartment. Connecting pipes are led from the upper part of each of the superimposed compartments, and connected with the working cylinder of an air-engine.

As the tide rises, the air in the lower vessel is compressed by the weight of the column of water, which rises, with the tide, through the vertical pipe, and fills the upper part of the reservoir. The compressed air is allowed to pass through the lower connecting-pipe, and thus drives the air-engine, the power being proportionate to the pressure. When the tide has reached its height, and begins to fall, the connecting-pipe is closed with a stop-cock, and the pipe connecting the upper chamber with the working-cylinder is opened. The water descends, by gravity, together with the external tide, thus leaving a partial vacuum in the upper chamber. The pressure of the atmospheric air to fill this vacuum gives motion to the piston of the air-engine, which thus continues to work during the fall of the tide.

The inventor, accustomed, we conclude, to the tideless phenomena of the Mediterranean, does not speak with the air of a practical man. Indeed, so little was he able to calculate the pressure on his model, constructed, he says, on the scale of 2·4 in. to the foot, that the glass panel which was inserted to show the ebb and flow of the mimic tide was unable to resist the pressure, and the metal reservoir has been bent out of shape by the same agency. The little engine works merrily enough. The height of water, which is turned on from the mains, is indicated by gauges. Much consideration has to be given to the subject before it can be regarded as a working method. But that consideration will be rewarded. The use of air as an intermediary, in transmitting the force of oceanic tidal gravity to machinery, is indisputably possible. And where the attainable power is unlimited, and the cost is that of machinery alone, the motor being a natural force, it is evident that such an amount of power may be obtained as to make the comparatively low pressure per inch adequate to the performance of any required amount of duty. We recommend the invention of Signor Tommasi to the attention of English mechanics, and, more especially, those of our great seaboard towns.

THE VALUE OF LAND IN LONDON.

AT the ordinary general meeting of the Institution of Surveyors, May 22nd, Mr. Edward I'Anson read a paper on "London: its Commercial Centres, and their Influence on the Value of Land." We must confine ourselves to a portion relating to the latter part of the subject:—

I might easily extend these observations as to the markets and manufacturing districts of London; but what I wish more particularly to point out is the influence which these great centres have upon the value of property. To be in a market is, we all know, of great importance; it is something to be in London, itself one vast emporium and mart, but it is more still to be in the great market itself. For this reason, the land in the great market of London,—the money market,—is the most valuable land in London, and perhaps the most valuable land in the world. What do we observe in the hoarding round the new building now erecting at the corner of Queen Victoria-street and the Poultry?—little boxes, where sellers are established in the vast line of traffic which passes this locality. What rent they pay I do not know; but I do not doubt it is something considerable for mere standing room in the midst of commercial London.

Something like 40*l.* per superficial foot for the freehold is, I believe, the highest price obtained for land in this great centre; but this is an exceptional case, and probably about 30*l.* may be stated as the average maximum value which ground has yet reached in the very heart of England's metropolis. This large value, however, extends over a very limited area. It comprises a part of Cornhill, but hardly extends beyond Finch-lane, to the eastward, or westward beyond the Liverpool, and London, and Globe Insurance Offices, at the corner of Lombard-street and Cornhill.

The highest quoted value of land in my experience was in Lombard-street; but, as before stated, I consider this quite exceptional. Lombard-street itself, in its best part, would not exceed two-thirds of the value of the land in Cornhill; whilst, at the eastern end of Cornhill, the land does not reach a value exceeding one-third of its maximum value opposite the Royal Exchange.

Taking, as I do, the Royal Exchange as the centre of the commerce of London, it is in this immediate neighbourhood that land reaches its maximum value. If we go either eastward or westward of the Royal Exchange the value of land rapidly declines; eastward, at the end of Cornhill, it is already only worth about one-half (10*s.*) per foot what it is worth at the Royal Exchange. If we cross over Bishopsgate-street the value decreases to about one-fourth of the maximum (5*s.*); and when we get as far east as the Minories the land there has almost reached its minimum value in the City of London.

In Bishopsgate-street Within, where are to be found the great commercial houses of Baring Brothers, Antony, Gibbs, & Co., and one or two more large mercantile firms, the value of land is about intermediate between its value at the eastern end of Cornhill and the western end of Leadenhall-street.

Proceeding in another direction, along the line of Lombard-street, the land here retains its value more nearly through its entire length than it does in Cornhill and elsewhere. Lombard-street is in the line of thoroughfare to the great commercial centres of colonial trade, and, with Fenchurch-street, may be taken at about one-third, or somewhat less, of the maximum value, falling to about one-fourth, or even one-fifth, as it approaches Mark-lane; beyond that point it passes the commercial centres, and rapidly falls in value.

There are now two great lines of thoroughfare tending westward, one leading along Cheapside and Ludgate-hill to the Strand, and the other along New Queen Victoria-street to the Thames Embankment. On the former thoroughfare, about as far west as Bucklersbury, the traffic is the densest in London, as computed by Mr. William Haywood, the engineer to the City Commissioners of Sewers, and referred to in a masterly pamphlet drawn up by him, urging the necessity of opening up new thoroughfares in the City.

As far west as Bucklersbury, the land in the Poultry, especially on the south side of the street, attains very nearly its maximum value. A very recent letting, at the corner of New Queen Victoria-street, will attest this assertion. Beyond Bucklersbury, the price gradually falls. I have hardly any data precise enough to give an exact proportion, but I am, probably, safe in saying, that along the western part of Cheapside, and (as far as the western end goes) of Ludgate-hill, the land hardly realises more than one-fourth of its maximum value. Along the Strand, as far as Charing-cross, about one-sixth is probably the per-centage, although, perhaps, this is rather low for corner situations.

If we take the new line of Queen Victoria-street, from the Mansion House to Blackfriars, there have already been sufficient dealings in the land bordering on the street, to prove that the value rapidly declines in proportion as we leave the great centres of value and commerce. The extreme eastern portion of the street fully maintains the maximum value; but it falls to about one-half a very short distance westward, and from one-fourth to one-fifth at the western end of the street.

If we follow the line of Cheapside in the direction of Holborn, the value of land still decreases as we go westward, until—notwithstanding the impetus given by the magnificent viaduct, which now blots out what was for long that great disgrace to London, the Holborn valley—the land hardly realizes one-fourth of the maximum value; although in one instance (a corner plot) it reaches about one-third. Southward of the Royal Exchange, in the narrow lanes which, until they were cut in two by the opening of King William-street in 1831, were very unimportant thoroughfares, the land reaches about one-third of its maximum price, until at the southern end of these lanes, next the river's bank, its value does not much exceed one-tenth of the maximum, and that only in the portions nearest to London Bridge on the west.

Northward of the Royal Exchange, except immediately adjoining the Bank,—that is to say, in Bartholomew-lane, Throgmorton-street, Lothbury, and Tokenhouse-yard, which are in close proximity to the money market,—the land does not exceed about one-half of the highest value, and beyond that it rapidly falls, until, in Finsbury, it realizes not more than from one-fifteenth to one-twentieth of the full value.

In Bishopsgate-street Without the value falls rapidly, and in the small streets running westward out of Bishopsgate-street, such as Sun-street and Skinner-street, houses and shops were, until quite recently, when their value has been somewhat improved by the passage of the North London Railway, letting at rents almost as low as the most distant parts of London.

There has always been, and still exists, an almost unreasonable difference in the value of land on the south side of the river and that upon the north side. In the best thoroughfares, land on the south side of the Thames scarcely realises one-fifteenth or one-sixteenth of the maximum value of City land; and when at only a moderate distance from the river, and, indeed, when close upon it, it hardly goes beyond one-fortieth of the maximum, viz., about 6*d.* a foot. Immediately adjoining, however, the south end of London Bridge, the land changed ownership by the acre at something over the highest proportionate rate I have just referred to, and in the line of New Southwark-street, in one favourable corner plot, it reached six-twentieths of the full value.

These statements of value, most of which are founded upon my own personal experience, I, however, only offer to you as approximate. There must always be exceptional conditions, such as corner sites, aspect, light, convenience of access, suitability for special buildings, non-liability to interference by adjoining owners, and so on, as well as the pressing necessities and prodigality of some of the great houses of business requiring extension of accommodation, which considerably influence the value of property in certain localities.

Besides the great lines of thoroughfare I have referred to, converging towards the central point of importance and value, there are also, as I have endeavoured to point out, other centres or foci of value, which are scarcely less valuable than those I have already enumerated. For example, I have recently heard of land, in the centre of the Manchester trade or market, being valued as high as the land in the close vicinity of the Royal Exchange.

It is curious to observe, however, within how short a distance the value of land varies. For instance, in Friday-street the maximum value of land is asked and obtained; but within a stone's throw of that spot,—in Monkwell-street, for instance,—its value falls to one-eighth of the maximum. And in the old City lanes intersected

by King William-street there is a very notable difference between the value of land on the north and on the south side of that thoroughfare.

The difference between the highest and the lowest value of land in the City may be stated as about 1 to 20; for I take 20s. a foot to be now about the maximum value, and 1s. a foot as about, although not quite, the minimum. I think I am right in saying that land let for residential purposes, in the most fashionable districts of Western London, does not reach more than from one-sixth to one-eighth of the maximum value of land in the City proper.

We are all familiar with the vast differences in the value of property which have occurred in the course of the last half-century. It would not, I think, be at all excessive to say that, in the localities comprised within the before-named markets, the value of land has at least doubled during the last fifty years, and that in the more important trade-centres within the city of London it has been fully quadrupled.

I have purposely refrained from alluding, by name, to any case; but one special instance occurs to me in illustration of my remarks. The Hanseatic towns had, from a very early period, a wharf in Upper Thames-street, near London Bridge, called the Steel Yard. Here, shut in within their own walls, they had their own mercantile centre and depôt for goods, just as, I believe, is still the custom in Chinese cities. The piece of ground covered just 60,000 feet superficial. The Hamburghers, to whom the Steel Yard belonged, sold this ground, through their engineer, Mr. Lindley (who has done much to raise the town of Hamburgh from the ruin in which it was plunged by the disastrous fire of 1842), for exactly 1*l.* a foot, or just what I now take to be the minimum value of land in the City. This was not more than some twenty years ago, and a few years since it was sold for, I believe, 3*l.* a foot. The site of the Steel Yard is now covered by Hawkshaw's City terminus of the South-Eastern Railway.

I have no sufficient data with reference to the value of land in other great cities to which I can refer, so as to quote figures, but I have a general impression that land in London has arrived at no excessive value as compared with such other localities, and that it is a value which, so long as we remain a commercial country, will be maintained, and even increased.

I can quote some instances of the value of land in Paris. The land in the new street from the Place de l'Opéra to the Rue de Rivoli was sold, in 1869, at from 68*l.* to 72*l.* per square mètre for corner plots, or from 6*l.* 6*s.* to 7*l.* per foot, taking 10 ft. superficial to equal a mètre. On the Boulevards the land, however, only fetched at the same time 5*l.* per foot; but these prices are, by no means, I believe, the highest prices for land which have been obtained in Paris.

In the centre of the city (viz., round the Bourse), and upon the inner Boulevards, land realises, if I recollect rightly, quite as much as, or more than, land in London.

THE ARCHITECTURAL DRAWINGS AT THE CONFERENCE.

THE invitation to architects to send geometrical drawings for exhibition at the Institute rooms during the Conference week did not result in anything very extraordinary in the way of an exhibition of this nature, though the whole collection was interesting, if only as illustrating the various ideas of different architects as to the best method of getting up working drawings; and there were isolated drawings of considerable interest on other grounds. Perhaps what would most strike any observer whose recollection of such things went back a good way, would be the total disappearance of the old style of fine drawing, with hair-like lines, and finished with absolute correctness in every part, but without the slightest attempt at an effective appearance. The contrary extreme, which may be called the blotting-paper style, and which for a few years was patronised chiefly by some young architects who thought the acme of perfection in drawing lay in an appearance of utter carelessness and roughness, has also disappeared; and on the whole an inspection o the drawings hung last week at Conduit-street, leads to the conclusion that geometrical drawing among architects at present is, in the main, in point of manner, clear and sensible, and very much what it ought to be, presenting a neat and intelligible delineation of what is required, without waste of time in unnecessary or absurd elaboration. All English architects who visited the gallery would be especially interested in the two or three sheets of details by M. Baudet, for the Église de Rambouillet, hung on one of the screens, as specimens of the manner of working adopted by French architects in constructive detail drawings. Whether these fairly represent average French architectural drawing we cannot feel sure, but certainly they are admirable specimens, in clearness and precision, of drawing of this class; and we would call attention to the system of giving *perspective* drawings of some of the points of the construction, or perspective combined with section, which, in some cases, might very usefully be adopted to facilitate the comprehension of the architect's intention by the workman, as well as to enable the architect himself to realise better what he was about. Another sort of interest attached to the beautiful little sketches in Indian ink, of M. Viollet-le-Duc, hung on another screen, and consisting of small representations of foliated capitals, of various designs, made at the works of St. Denis, for the direction of the carvers. These were equally admirable as artistic designs and for the freedom, ease, and rapidity with which the effect had evidently been obtained; the whole design and relief and shadow of the artificial foliage being indicated, in some cases, by a few strokes of the brush. Mr. Porter's small elevations and plan of a very big design for Museum at Kensington, &c., was an instance of what had been urged at one or two of the meetings as to the inability of geometrical drawings to represent a design; as the composition in question, rather pleasing with its centre dome and smaller cupolas, could, from no possible point of view, appear as drawn. A hotel front in French Renaissance style by the same hand, and Messrs. Banks & Barry's elevation of the Piccadilly front of Burlington House, might be classed together as neat drawings of the kind (the latter in line only), like a good many others in the same style. Mr. C. Barry's large drawing, in section and what may be called perspective elevation, of a portion of the front wall of Dulwich College, was a capital specimen of pen-and-ink etching on a large scale. Two or three working drawings for the spires of different modern churches were exhibited, which furnished a good example of what we have before recommended, the union of drawing and specification in one document; these drawings consisting of sufficiently well and clearly drawn illustrations of the external design and internal timber construction of the spires in question, written over with notes and directions, sufficient, as far as our observation was able to go, to abrogate entirely the necessity of any separate specification. Mr. E. C. Robins's plan of the Denmark Theatre in Leicester-square showed a winter garden with fountains and flowers encircling the auditorium; otherwise the plan did not differ materially from other theatre plans, save in an arrangement of having a prompter's box on each side behind the wings of the proscenium; a better arrangement than the usual intrusion of the feature in the centre of the front stage, if only the management are going to undertake to provide two prompters instead of one. The same architect's full-sized details of capitals, &c., for St. Stephen's Church at South Kensington, were good specimens of this style of working drawing, and among the most purpose-like things in the room. Mr. Snell exhibited drawings of Kensington district schools and workhouse, the latter a very sensible plain Elizabethan design in brick, with a modern touch here and there; and Mr. Tarver, in his elevations of Coombe Farmhouse, showed how picturesque a little house might be made out of very simple materials, by a judicious use of wall-tiles and treatment of roof-outline and windows. Mr. Schmidt's proposed "accommodation for the learned societies" showed clever utilisation of an awkward angle in the plan, by shouldering the auditorium of the lecture-theatre into it; and Messrs. Banks & Barry, in their drawing of Holy Trinity Church, Barking-road, exhibited some originality in the treatment of the springing of the timber spire. Mr. White's design for a private country-house would scarcely be passed over by any one with an eye for the picturesque of domestic design; and the plan was worth study, too, as a specimen of that irregular Gothic plan which lends itself so well to the domestic arrangements of English houses, combining convenience with opportunities for architectural effect of a quiet, homelike, picturesque order. Mr. Rolfe also exhibited some neat and picturesque drawings for schools, with chapel attached, where, for the sake of his own conscience, at least, we trust there is an altar just 8 ft. 5 in. long.

We should have wished to see a little more of ornamental and colour detail than was shown on this occasion; what little there was could not be said to be of much interest. The elaborate line-drawing of a design for the decoration of a library, with detail of a Classic type, is one of those things the value of which is almost *nil* unless the colour design be shown as well as the form. Mr. Aitchison's three chimney-piece designs for various rooms in a mansion were distinctive enough in character, and pretty in the general effect of the (apparently) inlaid floral ornament; but what may be called the architectural portion of the designs was somewhat weak. Mr. I'Anson's sketches of furniture details for the house of the British and Foreign Bible Society (the plans and elevations of which were also hung), were too small and sketchy to be of much interest as matters of study, though suggestive in parts. We entirely approve, however, on such an occasion, of architects sending the actual drawings from which their work has been executed, not touched up or revised, and should be always glad to see specimens of drawing which unite clearness with apparent rapidity and ease of execution. Rapidity without clearness, however, as in a sketch exhibited of a proposed market at Madrid, which was a mere unfinished pencil scrawl, is not what we care to see encouraged either by example or precept. One or two drawings there were, too, which might serve to encourage provincial visitors by showing to what kind of productions the letters F.R.I.B.A. *may* sometimes be found attached: but enough of that. The idea of an exhibition of geometrical and working drawings was a good one, and perhaps more may be made of it next year, and our provincial friends may be moved to contribute something of interest: we do not remember noticing anything from the provinces among the drawings that were hung; this, however, may have been partly the result of want of accommodation. It would add much also to the interest of the exhibition on another occasion if drawings of the same class, detail and working drawings especially, could be obtained from architects of other countries, besides France; Italy, Germany, or America, for instance. We have, mostly, little practical knowledge of the method of working adopted by our professional *confrères* of other nations.

THE ROYAL ACADEMY EXHIBITION.*

SECOND in importance, and hardly second in promise and in interest, to the class of paintings that deals with ancient historic subjects and the incidents of Oriental or classic life, must be regarded the group of pictures devoted to English *genre*. The school which contains such names as those of Hogarth and of Gainsborough appeals with unusual force to the sympathies of the English character. In the mixture of humour with pathos, or in the contrast of incidents of a comic aspect with aspects of grandeur, of pity, or of terror, we have an unrivalled master in our great native dramatist. In the description of the Battle of Agincourt, in the play of King Henry V., the contrast between those conflicting emotions is brought out with the most perfect mastery. In the satiric paintings of Hogarth may be traced the expression of a wit of the same temper, however inferior in rank. The conceptions of Hogarth are usually of a higher order than his execution. In Gainsborough we have the representation of simple, natural incidents, or the portrayal of individual character, effected by a magic touch which evinces true dramatic power. Domestic life, when raised by passion or by pathos above its ordinary level, is especially the subject for treatment by artists who have more guides among English writers than among English painters.

Mr. F. Walker, A., has given, in his "Prisoner at the Bar" (1,168), a dramatic work of a very high order. It is not in the technical excellence of the painting, that the charm of this striking picture lies, but in the depth and terror of the sentiment. The outline and expression of the principal figure linger on the memory like a ghost. In a gloomy, subdued light, which might well be that of an English court of law, in November, a meagre, terrified, guilty woman bends the glance of her large dark eyes on the face of the accuser,—witness, counsel, or

* See p. 379, *ante*.

judge,—unseen by the spectator, who is on the trace of her crime. Her poor thin hands nervously twitch and tear the leaves of the rue branches that lie beneath them on the bar, behind which she stands. Figure, face, pose are all full of the same terrible meaning. The indifferent, heedless features of the gaoler, or officer of the court, case-hardened to the sufferings of criminals, heightening by force of contrast the expression of the intense nervous lip of the prisoner. Pleasing the picture is not, but instinct with the energy of genius.

On a smaller scale than the last picture, which is nearly life-size, is No. 87, "School Dismissing," by Sir G. Harvey, P.R.S.A., which our northern friends will pardon us for calling a very fine example of English *genre*—as the term British *genre* is hardly admissible. It is not, we believe, a new painting. An old schoolmaster, in the costume of a century more picturesque as regards male costume than the present, stands in his schoolroom, deliberately examining the task of an impatient boy beside him. The rout of scholars rushes, with shout and struggle, to the door. Slant sunbeams light up portions of the scene, and glorify the texture of one of the boys' caps, waved in triumph in the air. Two or three culprits are awaiting, with varied expressions of fear or of stolidity, their several meeds of justice. The weak point of the picture is the face of the child on a form to the right of the spectator, which is far from good. The boiling impatience of the boy under inspection is an admirable pathognomic study, and contrasts admirably with the deliberation of the Dominie. Evidence of long study of the Flemish masters, as well as of the influence of Wilkie, is to be found in the subdued browns and greys, and in the limpid finish, of the scene. The picture cannot fail to become popular.

It is not desirable, in a notice limited as to length, to single out objects for unfavourable criticism. Still, the very marked want of knowledge, or heed of the simplest rules of composition, which spoils so many pictures, otherwise of merit, and reduces others to the level of wall papers, can hardly be too strongly insisted on. No one appears more pertinaciously to have listened to evil, rather than to good, counsellors, in this respect, than Mr. Orchardson. The acres of 2½-in. flooring which he gives are rather features for a surveyor's bill of quantities than for any form of pictorial representation. In "St. Mark's, Venice," the cardinal is very truthful and characteristic, but he travels over a great distance of country. But in "A Hundred Years Ago" (196) the artist seems to have experimented, with considerable success, as to how bad a picture his name would admit to the walls of the Academy. In "The Death of Buckingham" Mr. D. W. Wynfield has given the interior of a hall and the elevation of a staircase. Two small female figures are hurried, *par accident*, on the latter, and on a table in the former is stretched out a very inconvenient figure, suggested apparently, by a recently-exhibited work of Velasquez. The description, by Mr. John Forster, of the scene represented has, at all events, movement and alarm, but the picture gives, in addition to the furniture, only that which is disagreeable, and that, moreover, as if by mere casual incident.

It is melancholy to find, year after year, the same stock scenes from English history reproduced, like the modified forms of a book of fashions. Mary, Queen of Scots, and Anne Boleyn suffer and die annually on the walls of the Academy. Such trifles as "Wisdom and Garrulity" an admirably-drawn owl, with a scarcely inferior jay, by Mr. W. J. Webb (110), contrast most favourably with such ambitious but ill-considered failures. The birds are all they pretend to be. Mr. Mac Whirter's donkey (404) by the sea-side is another of those admirable nothings. Under the unpretending title of "The Three Magpies" (546), on the contrary, we have a well-treated incident of rustic life, in the good old time when the bride rode from the church on a pillion. If the sky and the water had been better rendered we should have had a charming picture here. The girl's face is delightful. The *cachet* of the good old days of hound and horn lingers in Mr. J. B. Burgess's "Visit to the Nursery." The old squire, who is hospitably and solemnly offered a cup of Doll's tea, is a very characteristic figure, and the mamma is perfectly charming. Mr. E. Nicol has given us rather an aged girl, in "How it was she was Delayed" (18). As matter of years, the delay is not explained; as matter of minutes, or of hours, the half-confident, half-shy face of the wooer is very admirable, and accounts for the want of punctuality. So is the puzzle of the boy at "The Fisher's Knot" (425). Mr. Faed has hardly given more time to "A wee bit fractious" (150) than is demanded for a sketch. It is difficult to express, in properly conventional terms, the amount of negative success attained by Mr. Armitage, A. Mr. Cope's "Night Alarm," taken from, or else miraculously like, a German engraving in "Reinette Fuchs," however, runs the former artist hard. The very happy rendering of the portraits in "The New Picture" (93), by Mr. Calderon, makes us regret the very awkward composition. On "On the Way to the Throne" this artist has bestowed more careful work than on his exhibits of former years. The motive of the picture is not to our mind. As satire, it is feeble; as incident, impossible. For example, the royal lady, by the eagle jewel by her side, should be either the Empress Queen of Hungary or her martyr-daughter. In either case, the liveries are quite out of truth. The intrusion of the barber at the last moment is altogether unlikely, and unimportant if true. But while the idea is trivial, the execution of the picture is very pleasing, and shows that decided progress which cannot but attend conscientious labour in such a painter as Mr. Calderon.

It is impossible to deny that the element of power is manifest in Mr. Elmore's "Lenore" (164). The sea nymphs are far too substantial,—they should have been mere forms of spray, to consist with the verity of the spectral bridegroom. Lenore's face is good, in itself, but hardly conscious of the extreme peculiarity of her position. But the picture has fine points, and seems to grow on study. There is a good bit of colour in this artist's "After the Siesta" (526); his "Judith" (1,120) seems looking round for applause, while earning, or pretending to earn, the gallows.

Mr. Frith's "Salon d'Or" (158) is, judging by the crowd which surrounds it, the most popular picture in the Exhibition. Viewed as art, these crowded canvasses, which rather resemble screens adorned with scraps than true pictures, are scarcely to be praised. The force and finish, the execution of the detail, and the skill with which figure is linked to figure by the by-play of expression (when time is given to minute examination), are such, in Mr. Frith's pictures, as to counterbalance this main evil. In the "Salon d'Or" there is the great advantage of the one ruling interest and passion harmonizing all discordant details; but the finish is not equal to that of the "Derby Day." By what strange chance the name of Mr. Herbert, R.A., has been affixed to the deplorable "All that's Bright must fade" (206) is unexplained. There is much humour and dramatic power in Mr. Horsley's "Reckoning" (234). The creditor looks not too hard to reckon with, if the sum were properly cast up; while the debtor has not the wit to do. The little pair of caprices, "Monsieur se chauffe" and "Madame se chauffe" (525, 527), would sparkle in a sitting-room. Mr. Mason's "Milkmaid" (553) will charm many. Mr. Marks's "Bookworm," which ought to be called by some name indicating a more general *virtuoso*, is a very creditable work of the new Associate. The expression of the countenance is very truthful, and the colouring harmonious. As to composition,—we will not complete the sentence. There is something fairy-like and antique in Mr. Poole's sketchy scene from "Cymbeline" (312). Mr. Pettie's "Serenader," in the love song, is so faithful to the self-admiration of an Italian *inamorato*, as to lead one to long to kick the hungry fellow in red. But as to the scene in the Temple Gardens (501), horrid feelings arise with reference to the artist himself. We would send this picture after the "thousand souls" referred to by Warwick. Mr. Sant's charming diploma work, "The Schoolmaster's Daughter" (331), is, as it should be, the best of his seven contributions. A good group of children are the "Volunteers at Artillery Practice" (138), called into the field by Mr. Webster, who also has an evident sympathy with his "Robbers dividing the Plunder" (257). Mr. Ward introduces us, with effect, to a phase in the career of Goldsmith as a physician (260), and Mr. J. Ritchie to a very bygone ideal of London and a grave London merchant, sadly amusing himself with angling in the Thames,—rather for barbel than for "Salmon" (261).

Among the portraits are a very happy one of H.R.H. the Princess Louise (286), by the Hon. H. Graves; a lovely group of the little Princesses Louisa and Victoria of Wales (243), by C. Bauerle; and two very faithful and happy, though roughly-finished portraits,—J. E. Millais, R.A. (172), and F. Leighton, R.A. (177), by G. F. Watts, R.A. The beauty of face, delicacy of complexion, and taper-grace of fingers given to each of Mr. Buckner's portraits are unquestionable. But what is the cause of the strong likeness, as though it were a family likeness, between those three lovely women? We cannot omit to notice the three curiously contrasting portraits of Père Hyacinthe, marked by composed, but not ignoble, fanaticism; Pope Pius IX., a vulgar picture of a mischievous prelate whom it is the fashion in this country to speak of with an entirely undeserved respect; and Mr. Binney, with his air of profound and thankful self-satisfaction. To these should be added a fourth, in the same room, the curiously Mediæval portrait of Mr. Clabburn, looking more like a saint than either of the three theological difficulties. To a few pleasing landscapes we have no room to refer. Mr. Vicat Cole has thrown a golden and glorious light over his larger scene, "Autumn Gold" (52), which is hung *vis-à-vis* to Chill October. The unpicturesque timber-yard selected as a subject by Mr. MacWhirter is placed over the latter landscape. Mr. Danby has lighted up the sea, in "The Day after the Gale" (317), with a magic lustre cast over wave and cliff. Mount Chimborazo (368), by the late L. R. Mignot, has a clear foreground and a fine misty distance. There is motion in the sea, freshness in the gale, and the dance of nature in the spray of Mr. Hayes's "Freshning Gale," fishing-boats returning to Scarborough. "Etna from the heights of Taormina" (545) is a fine effective scene by Mr. Brett. The moonlight view of the Pretorium at Neufchatel, by H. W. B. Davis, is a romantic and suggestive landscape.

We have to express admiration of the noble figure of "Odin, the Northern God of War," by Mr. V. C. Prinsep. The hands of the figure have the rare fault (almost merit) of being too small, especially as compared with the feet, but the stride with which the heroic form presses over the snow, the bold and massive draping of the head, and the weird companionship of the ravens, impress Odin very clearly on the memory. With this embodiment of Norse poetry let us compare that of the faith of Southern Europe of the day, in the reverent glance cast upwards towards the mighty dome of St. Peter's by the peasant and his wife, in "Contadine" (359), by K. Halswelle, A.R.S.A. The weak part of the picture, the clumsy marble Cupid, is true to the spot, although rather too much of it is shown. The peasants are admirable. Mark the Roman beauty of the girl on the ground.

NEW CORRIDOR, MERCHANT TAYLORS' HALL.

THE Merchant Taylors' Company is one of the twelve great livery companies, and is of considerable antiquity. It was incorporated by Edward IV. by letters patent in the year 1466, but was in existence some time previously. The Company's hall is in Threadneedle-street, and was formerly to be seen from the street, but is now hidden by a range of offices erected about twenty years ago by the late Mr. Hardwick, upon the site of some small buildings occupied chiefly by the subordinate officers of the company. The hall is a handsome room, about 80 ft. long by about 43 ft. wide, with traceried windows, and is placed with its longest side nearly parallel with Threadneedle-street, from which it is approached by two corridors, one at each end of the hall.

The original hall was destroyed by the Great Fire, and was rebuilt in 1669–70, the company having sold their plate for the purpose of providing the necessary funds. It is not improbable that some portions of the old hall were spared by the fire, or at least that sufficient of the building was left to enable it to be restored to something resembling its former condition, as the Gothic is very superior to what passed by that name at the time the hall was rebuilt. The design is attributed to Wren, who built the chapel and almshouses called Bohun's, or Boone's, at Lee, in Kent, for the company; but this is an error, the hall having been rebuilt by Jarman, the City architect.

The only communication between the western part and the eastern part of the company's buildings was through the hall, or by a covered way on the north side of the company's garden. To remedy this inconvenience, it was resolved, in order to give access to the divided portions of the premises, and prevent the hall being used as a passage-way, a short time since, to build a corridor

on the south side of the hall, with lavatories and other conveniences opening out of the corridor. The works have been recently completed by Messrs. Rider & Son, of Southwark, from the designs and under the superintendence of Mr. Edward I'Anson, surveyor to the company, at a cost of about 2,800*l.*

The new corridor is 7 ft. 6 in. wide, about 112 ft. long, and 10 ft. high, running the whole length of the hall from west to east, and is divided into five bays by piers, with segmental arches carrying the buttresses on the south side of the hall, which it was necessary to remove in order to form the corridor. The two easternmost bays have a range of narrow traceried windows looking into the garden belonging to the company. Adjoining the two middle bays is a projection containing lavatory, dressing-rooms, and other conveniences, and the westernmost bay and the projection adjoining is used as an entrance-lobby to the hall. The building externally is of Portland stone, and the dressings internally of Bath stone. The walls are lined to a height of 3 ft. 6 in. from the floor with panelled wainscot with a moulded capping. The bearers and lining of the ceiling are of deal, stained and varnished. The floor is laid with encaustic tiles with emblematical devices, supplied by Mr. M'Colla. A continuous corbel or cornice runs through the corridor, upon which is inscribed in raised letters the circumstances of the building of the corridor, and the names of the several officers of the company, in which record the name of the architect is very properly inserted; an honour too rarely conferred. The carving was done by Mr. Earp.

The whole of the windows, twenty-five in number, have been filled in with stained glass by Messrs. Heaton, Butler, & Bayne, the cartoons for the figure subjects having been made by Mr. T. M. Allen, and those for the heraldic work by Mr. Metcalfe. The window in the easternmost bay, which is a single light in consequence of a doorway being placed there communicating with the garden, has a portrait of Sir Thomas White, Lord Mayor of London in 1553, founder of St. John's College, Oxford, and a munificent benefactor of the Company's school.

The windows in the central bay on each side of the doorway leading to the lavatory are divided horizontally, and filled in with personifications of the Virtues,—the window in the right containing figures of Valour, Patience, Fortitude, and Wisdom; and that on the left figures of Mercy, Justice, Truth, and Love, surrounded with a narrow border, and covered by canopies. These figures are to a rather larger scale than the rest of the glass, and do not harmonise with the other subjects, either as regards size or treatment. The drawing is weak, and the colouring cold and insipid. The head of the figure representing Fortitude is boldly drawn, and better coloured than the rest; but the others, especially Love and Wisdom, are extremely *jejeune*, and are deficient in expression. Apart from the disparity in the scale of the figures, the difference in the style of the handling is very noticeable. The rest of the glass is treated in a thoroughly Mediæval spirit; but these figures are conceived in a manner approaching classicism, and resemble Munich glass in style and drawing.

The other three windows illustrate an incident in the early history of the company,—viz., the Contention between the Merchant Taylors' Company and the Skinners' Company, which was determined by reference to the Court of Queen's Bench, which Court referred the cause, in the year 1483, to the decision of the Lord Mayor, Sir Robert Belesdon and the aldermen. They decided that the two companies should take precedence of each other alternately, unless the Lord Mayor elect were of the company, when the company to which he belonged should have precedence. They further decreed that each company should dine at the other's hall twice a year,—viz., the Merchant Taylors on the vigil of Corpus Christi with the Skinners, and the Skinners with the Merchant Taylors on the feast of St. John the Baptist, or Midsummer-day. This latter injunction is still carried out, and appears to have induced harmonious relations between the two companies.

The window in the ante-room, at the west end of the corridor, represents a civic procession (probably on Lord Mayor's day), and the contest for precedence by the two companies is indicated by a struggle which is going on between two men bearing their respective ensigns, who are assisted by partisans on both sides.

The adjoining window on the east shows the Lord Mayor and aldermen adjudicating upon the dispute, and in the third window the very English mode of reconciliation by a dinner is illustrated, the master of one company being shown as about to drink to his brother master in a loving cup.

The heads of the windows above these subjects are filled in with canopies, which are rather too French in character, to harmonise with the rest of the design. The tracery above is filled with the arms of the Masters and Wardens of the company, very brightly and skilfully composed.

These windows are very agreeable in colour, and the drawing is clear and decisive. It is, however, to be regretted that the glass is so near the eye, as the leading is unduly conspicuous, and much of the effect is lost. No attempt seems to have been made to clothe the members of the two companies in their proper liveries, which might easily have been ascertained by reference to their records. What the dress of the Merchant Taylors may have been in the fifteenth century is not generally known, but it appears from an extract in Herbert's "History of the twelve Livery Companies," that in 1568, the colour of their hoods was stipulated to be "only scarlet and puke" (puce). The colour of their gowns is not specified, but in 1624 it appears to have been red, or as it was then called, *murrey*, and the use of other colours was forbidden.

In an illuminated initial to the charter of the Leathersellers' Company, A.D. 1444, representing the king (Henry VI.), delivering the charter to the company, the livery wear a dress of two colours, *murrey and plunket*, the former a deep red, as already explained, and the latter blue, "parted" into equal halves (hence parti-coloured), and trimmed with fur. The figures have their hair cropped, and wear scarlet pantaloons, with peaked toes. The style of dress is no doubt here correctly given, and it is very likely that the only difference between the various companies consisted in the colour adopted for their garments, and not in the cut or arrangement of the dress.

THE COAL-OWNERS' LONDON RAILWAY BILL.

THIS Bill, which has caused what will probably prove the most costly contest of the present Parliamentary session, has been rejected by the committee over which Sir Hedworth Williamson presides. The case was closed on Friday by the speeches of counsel, in which the voluminous evidence given, and a great deal more, was passed under review. The committee reserved their decision until Tuesday last, when the chairman gave judgment that the preamble had not been proved to the satisfaction of the committee. The decision has caused considerable surprise, as the Bill was, by almost every one, considered a genuine, honest Bill, promoted by independent men for a legitimate purpose, to unite the east of London,—the great manufacturing and coal-consuming district,—with the coalfields of South Yorkshire. The rejection of the Bill is a heavy blow and sore discouragement to its promoters, and is not a decision over which the inhabitants of London have occasion to rejoice; it involves practically the exclusion of a legitimate competitor from a share in the coal supply of the metropolis; no reduction of coal rates; no relief to the overcrowded lines upon which coal, goods, and passenger traffic are conducted; and involves, probably, more frightful railway accidents. The Bill has been defeated mainly by those powerful confederations, the Great Northern and the Midland Railway Companies, which the new line would probably have relieved of part of their coal traffic.

ROYAL ALBERT BRIDGE.

ANOTHER Bill has been in progress during the week in one of the House of Commons Committees on private Bills,—Mr. Hurst, chairman,—that is promoted by the Royal Albert Bridge Company, and opposed by the proprietors of the Battersea Bridge and the Thames conservators. The company got their first Act in 1864, and a second in 1869. They need a third to revive or extend their powers. Mr. Hurst's committee has declared the preamble of the Bill proved, but is taking security that the powers given in the Bill will lapse unless the Board of Trade certifies, at the end of six months, that 10,000*l.* have been expended in *works* connected with the bridge. About 12,000*l.* have already been expended upon land and works. After laying aside the design of Mr. R. M. Ordish, the original engineer, and taking up the design of Captain Julius Roberts, and even a third design, the company has fallen back upon Mr. Ordish, and a fresh contract has been signed for the construction of the bridge upon that gentleman's first design,—on the rigid suspension principle. The additional capital required to complete is 38,000*l.*, to which the company, through Mr. Mayhew, their solicitor, say that they can see their way. The bridge will be 710 ft. long between the abutments, with a 400-ft. span in the middle, and two side spans, each 155 ft. wide. The width of the road will be 40 ft., including the trottoirs: water headway 21 ft. at high water. The river piers will be cast-iron cylinders of 15 ft. diameter, filled with concrete and brickwork. The girders of the bridge will be of wrought iron, and it is expected that the structure will be completed in eighteen months. If the company can raise the money speedily, they will have little difficulty in expending it upon works within the time specified. It is much to be desired that the public should enjoy, without further delay, the sight and the use of a means of communication between the two banks of the river in that locality, that will be more sightly, useful, and convenient than the hideous and dangerous timber structure known as Battersea Bridge.

FROM VENICE.

THERE is a wonderful bit of railway being made from Mestra to behind the island of the Guidecca, to a point nearly even with the Dogana. It is a private enterprise of several merchants to convey the merchandise from the East and elsewhere direct to Mestra (the main land), to forward it to the interior of Italy without the labour of unloading and taking it in barks to the present station. The railroad is being constructed on piles across the Lagune. The work shows the desire of the Venetians to avail themselves of the opening of Eastern communication by Suez to increase their importation.

Salviati is preparing some beautiful mosaic pavement to replace the worn out ancient floor of the Church of St. Mark. It is to be exactly like the old pavement as to design, and figures of the four evangelists will be added. The old materials will be used whenever they can be applied; but in most cases the stone of formerly 2 in. thick has been worn down to ¼ in. The wavy appearance of the floor will be remembered.

The three pillars of the arches at the south-west corner of the Ducal Palace, called Adam and Eve Corner (from the figures of those worthies there, with a very demonstrative fig-tree arrangement), are considered becoming decidedly unsafe, and an ugly scaffolding is looming in the distance. So that they prepare and finish the reparation:—well; but St. Mark's is still disfigured inside and out with hideous scaffolding. Careful photographs and drawings are being made of every part of the three pillars and arches that they may be truthfully restored.

In St. Giovanno e Paolo, as well as in the grand old church at Murano, there is a dead standstill in the forward work of reparation from want of means.

SOUTH-EASTERN PASSENGER TRAFFIC.

IN a clever *brochure*, by Mr. Alfred M. Watkin, of the locomotive department of the South-Eastern Railway, some interesting statements are made concerning the traffic. From the pamphlet and other sources we learn that it is computed that the three millions of travellers who use the Charing-cross line locally between that station and Cannon-street, save, on a moderate calculation, 40,000*l.* per annum, reckoning their time at a shilling per hour, or fifty hours of working time in the year. On Easter Monday over 200,000 passengers were carried in and out at London Bridge Station, and over 900 trains were signalled. Between Dover and Cannon-street there are 75 signals, or an average of about one per mile. Between Charing-cross, Cannon-street, and Spa-road, a distance of three miles and a half, there are 34 signals. The Cannon-street signal-station is worked by five men and three youths, in relays, at a cost, for wages alone, of about 600*l.* per annum. The signalling on the Charing-cross section costs, for working alone, 2,400*l.*

per annum. The passengers in and out at Cannon-street Station average from 35,000 to 40,000 daily, according to the season. There are 652 trains in and out daily at the station, between six in the morning and twelve at night. From eight till eleven in the morning, and from four till seven in the afternoon, the trains average, out and in, 44 in the hour, or 264 trains in the six hours. In the past three years, on the South-Eastern Railway, 60,000,000 passengers have been carried. No train-passenger has been killed. Last year there was no accident to report to the Board of Trade; and Captain Tyler, R.E., Inspector of the Board, felt justified in referring to it as at the head of the "no-accident" lines of the United Kingdom. It shou'd be mentioned that, of the large number of points and signal-men that work the line between Charing-cross and Woolwich, not one is, on any day in the year, or under any circumstances, called upon, or permitted, to take more than eight hours' continuous duty as his day's work.

A PEOPLE'S GARDEN.

A PEOPLE'S GARDEN has been opened on Old Oak Common, near Willesden Junction. It is promoted by the People's Garden Company (Limited). The visitors had to reach the gardens by half a mile of road, which, for neglected mud and enormous pits and ruts, could scarcely be equalled. There are promised, in the future, railway communication, a large concert, meeting, and dancing hall, 200 ft. in diameter; a dining-hall, capable of accommodating from 600 to 800 persons; a theatre, museum, fountains, lake, temple, &c. There are fifty acres of elevated land, commanding extensive views, some flower-beds, a series of little refreshment-boxes on the northern side, an out-door dancing platform, and provisions for croquet, archery, cricket, and gymnastics.

OPENING OF MACCLESFIELD NEW COUNTY ASYLUM.

THIS extensive congeries of buildings has been opened for patients. The site is in the suburbs of Macclesfield, about a mile from the town, from some parts of which the towers of the building are now a feature in the landscape. The buildings stand in the centre of about eighty acres of land. At present, although accommodating about 250 inmates, the asylum is by no means finished, and the recreation-ground and details of the building and its immediate surroundings will not be fully carried out for some time to come. The buildings cover an area of nine acres and a half, and up to the present time probably 120,000*l.* have been expended upon them by the county. The asylum is calculated to hold about 700 patients. The style of architecture is Italian, the materials used being red brick, with white and blue brick dressings, and stone enrichments for the clock tower, and the principal entrance underneath it.

The estimate of accommodation afforded by the different parts of the building is as follows: Block No. 1 (female), 86 patients, 20 ditto in single rooms, total 106. Block No. 2 (females), 86 patients, 20 ditto in single rooms, total 106. Block No. 3 (males), 86 patients, 20 ditto in single rooms, total 106. Block No. 4 (males), 80 patients, 20 ditto in single rooms, total 100. Infirmary (female), 56 patients, ditto (male) 56 patients; excited class (female), 54; ditto (male), 54.

There is about a mile of corridors. There are about 1,000 windows, in addition to sky-lights plentifully strewed along the passages. The ventilation from all single rooms, passages, and day-rooms is obtained by means of single extraction flues, and cold-air gratings in the external walls. The inner shutters of all the single rooms, as well as the spaces above the doorways, are also fitted with zinc perforations. All the lantern windows in the building, which serve the double purpose of light and ventilation, are worked by iron rods and cranks under charge of the attendants.

The architect for the entire building is Mr. Griffiths, of Stafford.

The contractor, who has had charge of the execution of the whole of the work, is Mr. Henry Lovatt, of Wolverhampton. The clerk of the works is Mr. Laidlaw. The joiner's work throughout is of pitch pine. The floors of all the blocks are boarded, and the walls covered with cement. The staircases are of Kerridge stone. The lavatories, baths, and water-closets are fitted up on approved principles. Of the latter those in use in the Administration Department are Lambert and Jennings's patents; the baths and lavatories are by Messrs. Finch. The engineering works have been executed by Messrs. Coupe, of Wigan, for the sewage works; Mr. Mellard, of Rugeley, for the hot-water apparatus; Messrs. W. Mellor, of Rainow, for water-pumping engine; and Messrs. Benham, of London, for the cooking apparatus. The other sub-contractors are Mr. Mellor, of Macclesfield, for the plastering; and Mr. Westwood, of Dudley, for the slating.

The building is fitted with gas throughout, supplied from the Macclesfield Corporation Works, through a 500-light meter in the building. The fittings were supplied by Messrs. Messenger & Co., of Birmingham.

Provision against fire is made by one of Messrs. Merryweather & Son's hand-engines and hose in each block.

The church has been erected at the western boundary of the ground, in which divine service will be celebrated for the inmates by the appointed chaplain. The external walls are of Tegsnose stone, with Hollington dressings, the interior walls being of Bath stone with Hollington dressings and arches for the windows. The building is in the Early English style, with nave and transepts, chancel, organ chamber, and vestry, with entrance for the males into the nave, and females into the transepts. The roof is open timbered, with a double principal arch meeting in the centre of the transepts. The chancel and aisles are fitted with Minton's encaustic tiles, and the sittings (which are of the ordinary description), are constructed of pine, and are capable of accommodating about 400.

CONSTRICTING-RINGS ON WATER-PIPES.

THE practice of using "constricting-rings" on water-pipes is a very serious matter for the inhabitants of London, and ought to be brought in a distinct manner to their attention. A water-pipe supplying a house may be 1 in. in clear diameter along its entire length, excepting in one place; and at that place a constricting-ring may be put, so as to reduce the pipe's diameter *there* to one-eighth of the size, the effect being that the flow at the tap is very small indeed. The same reduction of flow may be accomplished by placing inside the pipe a disc, with a very small hole bored through it, or by flattening the pipe. These arrangements make the pipe give no more water than a clear pipe would which had the tap only a very little turned on,—a mere dribble. Mr. Greaves, the engineer of the East London Water Company, said, in his evidence before the Royal Commission on Water-Supply, that a *maximum* supply-pipe, with a disc inside, would yield to the consumer a pint of water a minute! It is to be hoped that the water company with which this gentleman is connected have no discs in the supply-pipes of the 32,000 houses which they serve on the constant system. AQUARIUS.

TOMB OF GERARDUS III. IN THE MINSTER CHURCH AT ROERMOND, HOLLAND.

ON a previous occasion we have spoken of the remains of ancient domestic architecture at Roermond, in Limburg, and we have mentioned the fact that this town contains two remarkable churches, of which by far the more interesting is that of "Our Lady," generally called the Minster Church.

The Minster Church at Roermond is certainly the most perfect and finest example of pure thirteenth-century style existing in Holland. It bears so strong a resemblance to the church of St. Quirinus at Neuss, on the Rhine, and to the Church of the Apostles at Cologne, that one would be inclined at first sight to set them down as works of the same architect; but we are of opinion that a more close inspection of the three buildings in question will convince the experienced antiquary that the church at Roermond is later in date than either of the other examples. The plan of this singular and beautiful building consists of a nave of two quadripartite bays (each subdivided into two), western transepts, and a kind of fore-nave of two bays to the west of the western transepts. In the angles formed by this portion of the building are two square bays, the angle piers of which are very solid, showing evidently that they were intended to form the lower portions of towers; and Mr. Cuypers, under whose judicious superintendence this church is being restored, has designed towers which are to be at once carried up. East of the nave are short apsidal transepts, and a very short chancel, consisting simply of an apse and one bay. Three smaller apsidal projections open into this greater apse. Over the intersection is a lofty octagonal lantern crowned with a dome, and there are two tall square towers capped with spires at the angles of the chancel and transepts. So that externally the church (when the present restoration is completed) will present a beautiful group of four spires and a dome. Mr. Cuypers has been found great fault with by some of the native antiquaries for retaining this domical roof to the lantern; but his defence is, that although the present dome dates only from the sixteenth century, in his opinion it retains the form of the original one; and M. Viollet le Duc, who was consulted in the matter, strongly corroborated this opinion. Certainly the form of the dome, which is not octagonal, but slightly star-shaped, is so thoroughly different from any sixteenth-century work that we know of, that we cannot conceive it to be an original work of that date; in addition to which, this dome is so very similar in form to those found on the old German reliquaries of the twelfth and thirteenth centuries, that we have little doubt Mr. Cuyper is correct in the view he takes of the subject.

Internally the church is very striking: its most remarkable features are the large triforium of the nave, the use of pendants in the vaulting, and the entire absence of a ritualistically-arranged choir.

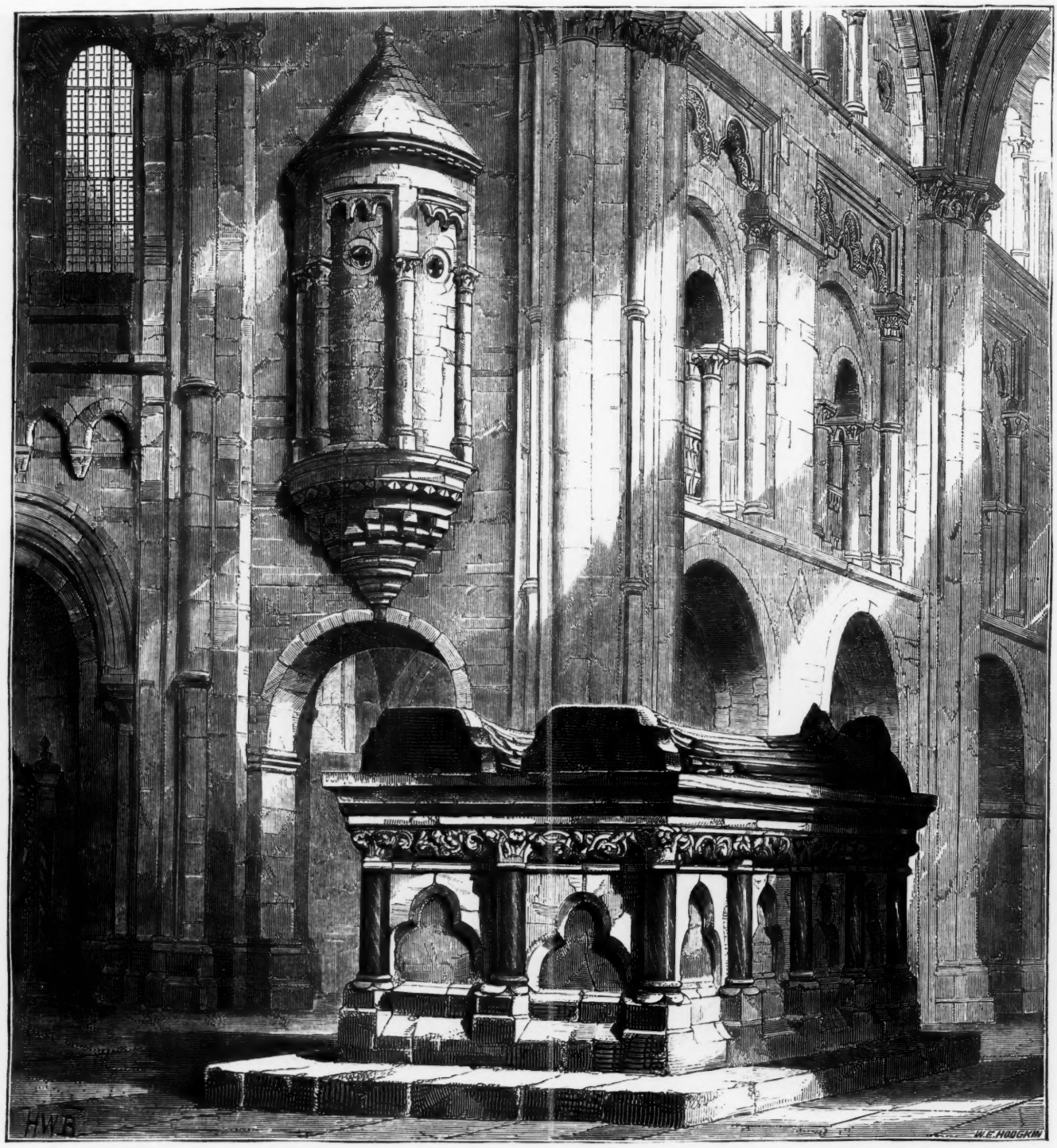
The great peculiarity of the triforium of the nave is that it was designed to serve the purposes of a choir for the nuns by whom this church was originally possessed; and where the triforium ends against the walls of the transepts two small apses are bracketed out, each of which is pierced with small windows (originally glazed), and containing a stone altar. One of these apses is shown in the engraving.

The pendants of the roof are very singular. The vaulting-ribs are brought down some 4 ft., and where they meet is a pierced circle. Through this piercing a wooden post is inserted, the end of which is carved in imitation of a flower, forming a kind of suspended boss. We are assured by Mr. Cuypers that this arrangement is original. It is quite evident that there never was a ritualistically-arranged choir here; and, what is still more singular, the original high altar, which still exists, is not in the *great apse*, but in the semicircular niche which projects from its eastmost side. A modern high altar is placed in the great apse, but Mr. Cuypers proposes to remove it, and restore the ancient high altar to its original purposes. There are two other ancient altars in the triforia under the eastern towers, and a magnificent early sixteenth-century triptych reredos, of carved wood, in the south transept, the doors of which are painted by an artist of the Cologne school.

Under the centre lantern is the tomb of Gerardus, the third Duke of Guelders, and his wife, founders of the church. It is an interesting example of an altar-tomb of the earlier half of the thirteenth century, composed of black, white, and grey marble. The figures are painted in "proper" colours. This tomb was until a few years ago surrounded by an iron grille, which, we are told, is now to be seen in the Tower of London. Can any of our readers give us any information on this subject? In the triforia of the nave are some good encaustic tiles; and in the great western gallery, which is original, is a fine old picture, of the school of Lucas von Leyden, representing scenes from the Passion of our Lord, in fifteen different compartments. Below the western gallery is a large fifteenth-century representation of the Entombment, with figures the size of life.

Funds have been subscribed for the entire restoration of the *exterior* of this fine church, which is being excellently carried out; and it is to be hoped that the entire restoration of the interior, which is sadly disfigured with plaster and whitewash, will follow in a short time, and under the same architect.

Albert Medal.—The Albert gold medal "for distinguished merit in promoting Arts, Manufactures, or Commerce," has this session been awarded by the council of the Society of Arts to Mr. Henry Cole, C.B.



TOMB OF GERARDUS III., ROERMOND, HOLLAND.—*Thirteenth Century.*

THE BALUSTER COLUMNS, ST. ALBAN'S ABBEY CHURCH.

SPEAKING of the baluster columns in the triforium of the transept, Mr. Scott says in his Report:—

"A question arises: Are these columns, though Saxon, as early as the time of King Offa, and did they form parts of the church which he erected or restored at the suggestion of Charlemagne?

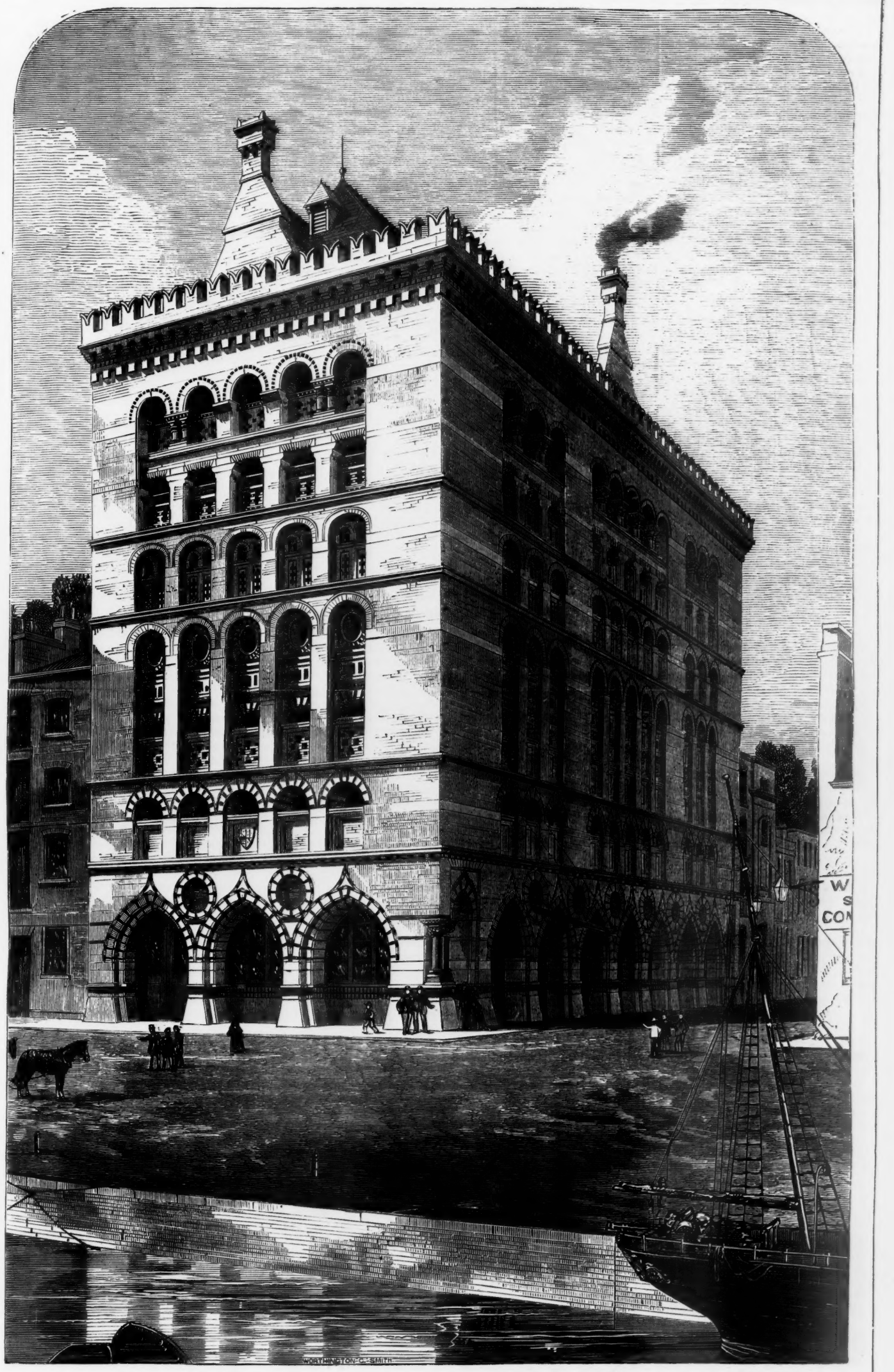
It is my good fortune to be able, as I think, to throw some light upon this question. I was engaged some years back in repairing the Saxon Church on the Castle Cliff at Dover,—said to have been built by Eadbald, son of Ethelbert, the first Christian English king,—when we found, used up for later purposes, balusters just of the same kind. Again, I was repairing the Saxon Church of Jarrow-on-the Tyne, the very church in which Venerable Bede ministered, and erected just before by Benedict Biscop. Here, in removing some modern walls, we found, bedded in them as mere material, no less than twenty of these curious columns. Shortly afterwards, in the Sister Church at Monk Wearmouth, erected also by Benedict Biscop, and described by Bede, a doorway, long walled up, was opened out by the local antiquarian society, when four such balusters were found in their proper position, forming portions of its jambs.

If, then, we find in three churches, all of the seventh century, baluster columns of the same kind with those at St. Alban's, why need we doubt that the latter formed portions of King Offa's Church, which was erected (either wholly or in part) in the succeeding century? We may, then, fairly assume that we have in the present structure features which belonged to that which immediately succeeded, or even formed a part of the church built on the scene of martyrdom, and within about ten years from the death of the Proto-Martyr."

GRANARY ON THE WELSH BACK, BRISTOL.

THE illustration which we give in our present Number represents a granary erected from the designs of Messrs. Ponton & Gough, of Bristol, for Messrs. Wait & James. The ground being defective for so heavy a structure, a layer, 6 ft. thick, of ground brown lime concrete was spread over the whole site, and upon this platform the external walls were erected, to the great height of 100 ft. The building is 96 ft. long, 40 ft. wide, and contains ten stories. The lowest story is used as one large bonded cellar, a portion of the ground story for the offices, a small portion of the top story for an engine-room, and all the rest of the building for storing grain, and will contain 12,000 quarters of wheat. There are only nine internal supports for the granary floors, and this leaves the large floor space unusually free of pillars. The external walls are faced with the hard Cattybrook bricks, and advantage has been taken of the necessity of obtaining a large surface for the introduction of air into the granary, of ornamenting the lower portion of the window openings with open patterns in brickwork. The great difficulty experienced in designing the usual external lifts and external doors on each floor, for the introduction and delivery of grain, has been avoided by arranging the lifts in niches at the angles of the building, and by delivering the sacks of grain into carts upon movable skids, sliding out of the round holes under the first-floor string-course.

The contractor was Mr. Thorn, of Bristol, who erected the building in nine months; and the cost was 6,000*l*.



GRANARY ON THE WELSH BACK, BRISTOL.—MESSRS. PONTON & GOUGH, ARCHITECTS.

CONVERTIBLE CARRIAGES.

SIR,—In your paper on the "Coal Supply of the Metropolis," you state that the new coal and goods line would save 1s. per ton, or 300,000*l.* a year to London.

Permit me to remark that the use of convertible carriages would save 2s. more per ton, or make a saving of 900,000*l.* a year in the whole.

Convertible carriages run both on rail and road, the wheels being changed when the truck is loaded by a single porter with a screw-jack. They have been described in General Hill's "Railway Problems, 1870," and other publications.

Why are they not used? Because railway engineers pretend they would be liable to accident on passenger lines by breaking down, and therefore forbid their certificate; their real objection being, that they refuse to assist the invention of "outsiders." On the coal-line this objection could not prevail; and once introduced upon it, they would soon find their way to other lines, for there is nothing in the objection.

The advantages of the convertible truck are, that all cost of loading and unloading is saved. The coal would come direct from the pit's mouth to the cellar of the consumer, without being chipped and watered by the coal merchant. If necessary, it might come in locked vans, so that no pilfering could take place.

The only thing to be attended to is to make the truck within the capacity of an ordinary team of horses to draw through the streets. Six or seven tons could be easily drawn, but beyond this the trucks are needlessly large.

Bricks, slates, manure, everything, in short, which goes in one large load to the same destination, could be carried at much less cost by these trucks than by the double system of railway-vans and road-carts at present in vogue.

When we shall have lost for some years some millions a year by the refusal to adopt convertible carriages, their merits will at last be recognised.

CONVERTIBLE.

CHARGES FOR PROFESSIONAL SERVICES.

SIR,—The President of the R.I.B.A., in his opening address, published by you, at the first meeting of the Congress, alluded to the diversity of charges by professional men, and spoke of it "feelingly; for within the last three months he had had five cases of disputed accounts between architect and employer referred to him for arbitration, as president." This argues well for the employers, that they should have consented that an architect should act as umpire in settlement of architects' accounts. In courts of law such decisions by the judges are recorded, and are most useful, as deciding the law or practice upon special points. It would be invaluable if the president were pleased to allow a copy of the charges, and his decision and opinion thereon, to be deposited among the records of the Institute for reference by the members, to guide them in doubtful points. It may be a mere A B case, sufficient for the purpose, and not compromising any parties. I fear there are many of our brethren who consider themselves entitled, by their interpretation of the rules of the Institute, to make the 5 per cent. a mere starting-point, and, by cumulation to make their charges range up to 7½ per cent., or even 10 per cent., upon considerable works. A record of judgments by so high an authority would go far to rectify this, and I think it may be useful even as a control to another umpire, whoever he may be.

SENEX.

ARCHITECTS FOR THE LONDON SCHOOL-BOARD.

AT the last ordinary weekly meeting Mr. C. Reed, M.P., brought up a report of the Committee of Works and General Purposes (29th May, 1871), which said:—

"1. The Committee recommend the Board to advertise for sites as they may be required, promising a commission to any surveyor, valuer, or agent who can furnish such sites, provided they be approved by the Board. 2. With reference to the appointment of a consulting architect and surveyor, considering the probability that each of the schools to be taken over must be reported upon separately, and that there will be many questions of sites, plans, drainage, ventilation, alterations, and the like, the Committee recommend that an officer should be appointed as one of the staff of the Board, whose duty it will be to give his whole time during office hours to the work of the Board,—such officer to be a practical architect and surveyor, who has considerable experience in designing school-buildings. The committee also recommend that such an officer should be appointed, at a salary of 500*l.* per annum from Midsummer next, with an intimation that, should the work increase, and the Board be satisfied, the salary would probably be augmented. 3. As to the selection of an architect for the erection of schools, the committee recommend that, looking at the great importance of the work, the Board should make their selection at present by a competition, to be limited to such names as may be approved after the inspection of schools in various places. The Committee suggest that in such competition a small honorarium be given to each designer; that no perspective, or merely show drawings, be sent in; that uniformity of scale be observed; and that the successful architect be employed on the proposed building, provided that the Board are satisfied that his design can be executed within a reasonable margin of the cost he states in his estimate. All designs to be the property of the Board."

Mr. Reed, as chairman of the committee, moved that the report be adopted, and be referred back to the committee to be carried out; and that, with reference to the choice of a consulting architect and surveyor, the committee be authorised to select six names from whom the Board may make the definite appointment.

After some discussion as to the advisability of appointing a consulting architect, in addition to the architect engaged to superintend the erection of buildings,

Mr. Green moved the omission of that part of the report which referred to a consulting architect; and after some little discussion,

The Chairman recommended that the word "consulting" be omitted, and "architects" substituted for "architect."

This was agreed to; and, after further debate, the preamble was agreed to, with some verbal changes.

The second recommendation was agreed to.

The question of salary was divided upon, whether it should be 400*l.* or 500*l.*, the latter being carried by 28 votes against 4.

The third recommendation was postponed; and the motion that the report be so far adopted, and referred back to the committee to be carried out, was affirmed.

PATENTS AND PATENTEES, RETROSPECTIVE AND PROSPECTIVE.*

IN the United States, Mr. Macfie says, there is a strong movement going on in favour of the abolition of patents; Holland has got quit of the incumbrance of patents in the belief that they are injurious to her, but nothing was said of the action of Belgium in the matter.

It is often said that in the United States every second man you meet is either a patentee or a bankrupt, or about to become one or the other in the briefest possible time. There can be no doubt that mechanical activity is great in the States; our free and enlightened cousin across the Atlantic will patent anything,—from wooden nutmegs to petroleum champagne,—by which he can grip the almighty dollar, and keep it to himself. He is great and ingenious in useful matters,—always practical. Has he not revolutionised our shops and introduced new and profitable trades? Is he not a great boon to housewives? Has he not patented no end of sewing-machines, washing-machines, mangling and wringing machines, boot and shoe-making machines—pegs, screws, and glued,—knife-cleaning machines, bottle-washing machines, to say nothing of whisking-machines, and a dapper little machine to peel potatoes, apples, and oranges, besides no end of machines to boil eggs, and freeze water for mint juleps and sherry cobblers?

Is he not renowned for all kinds of agricultural machines? Look at the trade created by one American firm alone. In the year 1867 they made and sold 12,000 reaping-machines; in 1868 the numbers rose to 17,000; and in 1869 the extraordinary number of 23,500 mowing and reaping machines had been reached.

What kind of incumbrance our Dutch friends found, the honourable member did not state; but as they are not renowned for change, or mechanical inventions, one need not be surprised that as a people they have attached little importance to patents or patentees: their ways are old-fashioned ways, and, like the Chinese, they stick to them with undying love.

Mr. Mundella said it was true that Switzerland had refused to establish a patent law; but why? There was not a ton of coal in Switzerland, and she could not construct a machine there. Under this circumstance it was not to be wondered at that she should be willing to steal from France, Germany, and Italy whatever she could to aggrandise her own manufacturing districts. Whenever a committee should be constituted, he would bring before it *hundreds of poor men* who had risen to fortune through having a property given to them in their inventions. Good, so far, Mr. Mundella. If true, this latter statement is more than satisfactory,—it is positively refreshing to learn that "hundreds" of poor men have risen to affluence through patents. Let us hope it is true, and can be proved. But, with all due respect and deference to Mr. Mundella, it is to be feared that the task he so gallantly proposes to perform will be difficult to accomplish in the face of known facts. That some have made fortunes—yes; but it is much to be feared that the greater number of patentees are known to keep only a Flemish account at their banker's, and are too frequently on the shady side of the hedge to get much profitable sun. It remains only to add, for the information of those whom it may concern, that the cost of a patent to an American inventor, which is granted to him for seventeen years, is only 35 dollars; whilst the cost of a patent to an English inventor is 875 dollars, and that for fourteen years only.

Such, then, are a few of the *pros* and *cons* bearing on the question of patents, as briefly enunciated by honourable members not unknown to fame in the engineering world, as well as in the House of Commons. No doubt, the entire question will have to be more closely investigated before any very extensive changes are made in the patent laws. To those who advocate their entire abolition the important question will always turn up and face them full-butt in front. How is a man to be secured in the beneficial possession of his own invention,—a true property created by the expenditure of his own time, money, and mental labour? The problem is not a very easy one to solve, and will puzzle more heads than one before it can be finally and satisfactorily settled.

For good or evil, the number of patents granted in any one year is, at least, a promising sign of mental progress and mechanical enterprise. As already stated, in the year 1800 there were only 96 patents granted; but last year they had sprung up to 2,491. Is this rapid advance to be attributed to an exalted idea of imaginary profits, derivable from successful patents, or merely to a restless activity of mind, regardless of loss of time and labour? There are many causes at work, direct and indirect. It may be attributed to better education among the masses, a greater spread of general knowledge, more active co-partnery and association, and to the great reduction in the rate of patent-fees already effected by recent legislation; to the growth of capital, and a more ready access to capitalists. All these, or a combination of them, have, no doubt, led to the great extension of patents in this country, to which must be, undoubtedly, joined the effect of the great international exhibitions, and the many local exhibitions, constantly attracting public attention, to which may be added the restless competition of our manufacturers, always on the look-out for novelty or improvement,—a salutary emulation, which ought not to be discouraged for light or trifling reasons.

It is a frequent complaint that patents are often granted for things that can scarcely be called inventions, or for almost invisible improvements in already existing patents; that the slightest alteration in one man's device becomes good ground for another patent; and this, again, by a little addition, gives rise to a third, or, indeed, according to the present system, to any number of patents, for what is practically the same thing, in which the differences are so minute as to be almost imperceptible.

All this may be true. How many patents are there for electric telegraphs? They all, more or less, differ in minute particulars, the general principle being pretty much the same for each class of instrument. Yet there are between two and three hundred patents in existence for these useful implements. The electric telegraph invented by Ronalds, of Hammersmith, early in the century, is the Adam of the race. It was a true telegraph. It had the needle, the alarm-signal, wires above and underground. He was before the times, and did no good. The Government of that day told him "that, the war being over, it had no use for telegraphs;" and so the ancient semaphore at the Admiralty maintained its place. What would the ministers of that day say now, if they could rise from the grave?

In the year 1826, or thereabouts, in the humble manse of Carmylie, in Forfarshire, the Rev. Patrick Bell worked out the first reaping-machine. In all essentials it is the honoured father of a long progeny of children,—all of

* See p. 369, *ante*.

strong family likeness. Yet how many patents have been derived from this rough but useful implement. Here, again, "the child is father of the man." As to agricultural implements in general, it may be said that each manufacturer of any note has a muniment-room full of patents, and as much wax in the form of great seals as would stock the shop of a chandler. The same general observations will apply more or less to sewing-machines. Their name is legion, yet nearly all are based on the original one; the distinctions in many cases are so minute that it is not an easy thing to define the difference existing between the several improvements.

Not long since, when in the armoury of the Tower of London, a garrulous warder pointed out to me a rusty old revolver under one of the windows, from which Colonel Colt took the idea of his world-renowned arm. This he told the warder himself, therefore the story is most likely to be true. Are not our famous breech-loaders a return to the old "chambers" of our venerable ancestors; and our built-up ordnance but an extension of the "hoop" strengthening of olden time?

That foolish patents are sometimes granted is true. A few years ago one was granted for making "timber out of sawdust;" and not long since a patent was passed for making "sword-scabbards out of ox-tails;" and, what is more to the point, a flaming prospectus was issued, with the usual list of directors, auditors, and secretary, and put upon the market,—with what success deponent knoweth not.

It would be hopeless within the limit of this short sketch to attempt any kind of analysis or illustration of this part of the matter, though interesting enough in an engineering point of view. Nor can any attempt be made to trace the progressive advance and improvement of the most useful and well-known of our best tools and machines, and principles of mechanism developed in their construction. The self-acting slide-rest alone would require a volume, for it is the true right hand of modern engineers.

The calamities of inventors would make a book as deeply interesting as the elder D'Israeli's "Calamities of Authors;" quite as melancholy and full of disappointed hopes, labour lost, and reward too late to be enjoyed. Inventors have been occasionally the recipients of Government bounty,—always inadequate. This kind of reward is not only precarious, but apparently doled out on no fixed principle as to the merits of the case or the amount to be granted.

Henry Cort, whose great invention for the manufacture of iron is a well-known case, it is true, received the sum of 20,000*l.*, but too late in life for him to reap any enjoyment from it. It has been estimated by competent authority that the application of his discovery has created wealth to the amount of between 600,000,000*l.* and 700,000,000*l.*, not a long way removed from equalling the National Debt, and gives at the present time employment to upwards of 600,000 workpeople. Perhaps one of the most unfortunate inventors was Henry Fourdrinier, who, after the labour of a long life, the ruin of his prospects, and the expenditure of 60,000*l.*, brought to perfection his machine for making paper,—one of the most useful machines ever invented for aiding in the spread of knowledge, after the printing-press itself. So great was the improvement effected by this beautiful machine that the paper duty was soon increased by upwards of 500,000*l.* per annum, and effected a saving to the country of 8,000,000*l.* From the great improvement of the paper, it assisted powerfully in the progress of lithography and engraving. Even where least expected, it brought improvement in its train, for the fine tissue paper manufactured by it had a marked effect in improving the printing of patterns and devices on pottery, which was felt and freely admitted in Staffordshire. When in extreme old age, after many weary years of application, he received the small and utterly inadequate Government grant of 7,000*l.*, after his claims had been carefully investigated by a Parliamentary committee. He lived to see the triumph of his machines, and died at the patriarchal age of eighty-nine.

Could this noble old man have stood by my side but a few weeks ago, how his eyes would have glistened with pleasure, to look upon some fine brass wove wire of 28,000 meshes to the square inch, and a copper wire 3,000 yards long drawn from a single penny-piece,—one of Boulton & Watt's old contract pieces, long since withdrawn from circulation. What painful trouble, labour, and anxiety, these fine specimens of wire-weaving would have saved to Henry Fourdrinier, could he but have had the like when he began his experiments at his once prosperous paper-mills,—the Two Waters,—at the junction of the little river Gade and Bulbourne brook, in pleasant Hertfordshire?

Accidentally looking over an old-fashioned description of Derbyshire, "adorned with copper cuts," I stumbled upon a quaint account of Sir Thomas Lombe's once renowned silk-twisting mill, built on the banks of the pretty Derwent at Derby.

The somewhat mystified history of this piece of machinery is well known,—how Lombe went to Italy, got introduced to a famous silk-mill there as a workman, studied the details, copied out all its parts, then fled for dear life to England, where he put up his mill,—the first in the kingdom,—for making Argazine or thrown silk. So began the silk twist trade. We are treated to a little detail, and told how,—"This engine has 26,586 wheels and 97,746 movements, which are all worked by one water-wheel turned by the Derwent three times round a minute. By every turn of the water-wheel the machine twists 73,726 yards of silk; so that in twenty-four hours it will twist 318,496,320 yards. And it gives employment to between 300 and 400 work-people. This machine was considered of so much importance by the Legislature that, on the expiration of the patent the Parliament granted him 14,000*l.* as a further recompense for the great hazard he ran;" for he is said to have been dogged by Italian assasins.

The condition of recompense was that a perfect model of the machine should be sent to the Record Office in the Tower of London, there to be kept to perpetuate the invention. The sole existing fragment of this machine is now preserved in a small glass-case in the Patent Museum, Brompton; it is of wood, and seems to have been well made, as far as one can judge from so small a fragment.

Harrison, the famous chronometer-maker, and inventor of many useful appliances in horology, received a Government grant of 20,000*l.* for improvements effected by him in chronometers and other time-keepers: he well deserved it, for he was a great friend to astronomers and navigators. A curious old-fashioned eight-day clock, with wooden wheels, the production of his hands, is preserved in the Patent Museum, Brompton; it still "go's tic-tac," and is well worth inspection.

In conclusion, this naturally brings my freely-wandering observations to the remarks offered to inventors by the existing and recent Governments. It seems from a return recently published that during the ten years ending 1869 the Director-General of Ordnance has spent in experiments no less than 233,327*l.* for Ordnance and 8,124*l.* for small-arm experiments. These amounts do not contain the costly experiments of the Whitworth and Armstrong contests, which, in fact, exceed all preconceived notions on the subject. For converting muzzle-loaders into breech-loaders Mr. Snider, Colonel Roden, and Mr. Wilson, divided amongst them 16,000*l.* for the plan only, and not for the actual work. Major Palliser, one of the fortunate few who deal with Government, for his mode of chilling projectiles gets 15,000*l.*, and for the conversion of our old cast-iron guns he gets 7,500*l.* Considering that chilled iron has been frequently used before, can this be called an invention? It may be claimed as a novel application to gunnery. Years ago the trunnions of the transit instruments, both at Greenwich and Cape Town Observatories, were made of chilled iron; but the novelty is, of course, in chilled shots, to give a warm reception to our friends the enemy when they choose to pay us a visit. Captain Moncrieff, for his new scheme for mounting big guns, got 10,000*l*, with the addition of 1,000*l.* as salary, and the pleasant prospect of a further bonus of 5,000*l* when he has completed his invention,—for it is not yet complete. Mr. W. Hale, for his stickless rockets, gets 8,000*l.* Mr. Frazer, of Woolwich, is rewarded with 5,000*l.* for the construction of guns which are to supersede the Armstrongs in active service. For breech-loading carbines Mr. Westley Richards gets 2,375*l.*; Colonel Badderley, for patent screw bands for rifles, 1,500*l.*; Mr. Pittman, for concussion fuzees, 1,200*l*; Mr. Lancaster, for rifling guns, 4,000*l.*; Mr. Clarkson, for cartridges, 1,000*l.*; and Mr. Henry, for his breech-loading rifle, the modest sum of 600*l.*

Military men and others who employ their faculties in the invention of things to maim and destroy their fellow creatures, cannot complain of lack of due reward and encouragement to complete their amiable intentions.

The fortunate Palliser gets 15,000*l.* for vamping up old guns—the same amount given to the illustrious Doctor Jenner for stamping out the small-pox. Sir Humphrey Davy and George Stephenson got 1,000*l.* each for their safety-lamps—the miner's friends. Hence it appears to be more profitable to invent machines to destroy than to save life. Most of these well-rewarded gentlemen are protected by letters patent, and we may therefore expect that they at least will oppose those who may wish the abrogation of all patents. A Parliamentary committee is about to sit: it is expected to go fully into all matters relating to patents and patent laws. Let us hope that it will be attended with beneficial results, and that future legislation may remove many of the difficulties which now embarrass the subject, and give real inventors a sure property in their inventions. J. L.

ST. MARY'S HOME, RUSHOLME.

THE foundation stone of the new building for St. Mary's Home, in Dickenson-road, Rusholme, has been laid by the Bishop of Manchester. The plan of the building is an oblong, and its broad-side will face Dickenson-road. The front portion of the building will be set apart for the persons managing the home, and the back part will be used by the inmates. The work-room and dining-room for the inmates are each 16 ft. 6 in. by 16 ft., and the ceilings throughout are 11 ft. high. The wash-house, which is 19 ft. by 15 ft., and the laundry, which is 24 ft. by 15 ft., project at right angles to the back portion of the building, while beyond are various other outbuildings. A covered way forms a means of communication between these outbuildings and the main building. A corridor runs from end to end of the main building, forming a means of ventilation. The staircase and entrance-hall are nearly in the centre of the front part of the building, having the committee-room and waiting-room on one side, and the ladies' dining and sitting rooms on the other. The superintending ladies' rooms are to the front of the building, on the chamber floor, while at the back are dormitories for the inmates, 49 ft. 6 in. by 21 ft. 3 in., and 28 ft. 4 in. by 21 ft. 3 in. respectively. The dormitories are separately arranged. The building is provided with bath-rooms and other conveniences, and attention has been paid to ventilation. The elevations are plain, and are executed in selected common bricks, with white headers, relieved by bands and arches of stock bricks. The entrance and staircase hall form the principal feature in the front, and the door and windows have stone dressings. The chapel projects from the east end of the building, and is lighted by windows on both sides and by a triplet at the east end. The building is being erected from the designs of Mr. John Lowe, of Manchester, architect, by Mr. George Napier, of Hulme, builder. The contract for the building (exclusive of boundary walls) is about 2,400*l.*

TREATMENT OF TOWN SEWAGE.

INSTITUTION OF CIVIL ENGINEERS.

ON May 16, the paper read was "On the Treatment of Town Sewage," by Mr. Arthur Jacob. The agricultural mode of dealing with sewage, namely, by irrigation, was advocated as at once effectual, consistent with sanitary requirements, and economical. In situations where land could be procured at a reasonable cost, irrigation might be employed; it effectually removed the dangerous impurities in sewage, and discharged the effluent water, in a state practically pure, into the watercourses of the country, and this could be accomplished without prejudice to the public health and without inconvenience to the senses. The process of irrigation was to a great extent independent of the state of the weather, being but little arrested either by continuance of wet or cold weather; and produced to the agriculturist such results as no ordinary management could accomplish. The farms at Horrchurch, Barking, Croydon, and elsewhere, had furnished evidence of the large returns that irrigation, when judiciously managed, was capable of producing.

The difficulties of procuring suitable land were sometimes considerable. Land should be selected with regard to the special circumstances of each case, rather than with reference to the

simple requirements of engineering expediency. The points specially considered were, the distance from urban districts, the proximity of the farm to a suitable market for the produce, and its relative position with regard to the direction of the prevailing winds.

The objections raised to irrigation, as a means of propagating entozoic disease, did not appear to be supported by facts; but, being admitted, they could be met by the employment of the tar acids, which experiments had proved to be absolutely destructive to animal life in the form that objectors pre-supposed it to exist. If sewage irrigation was attended with the dangers apprehended, the same objection would hold to the employment of all ordinary kinds of manure.

The determination of the area of land requisite for the treatment of the sewage of a standard number of people depended on so many circumstances, that it could only be arrived at by experiment and experience. In each existing example there were varieties of circumstances that would influence the conclusion to be arrived at, sewage being sometimes strong, at others weak, and the soil free or compact in every possible variety, the determination of the requisite area would necessarily be varied accordingly; but so far as the determination of the question had been carried, the balance of opinion indicated a proportion of about 100 people of all ages to 1 acre of average agricultural land. Much, however, depended on whether irrigation was employed merely as a mode of abating nuisance or as a source of pecuniary profit. Irrigation was practised on the large scale in three different ways,—by catchwork, when the surface of the ground afforded sufficient inclination for the sewage to flow off; by the pane and gutter, when the surface inclination was but slight; and by ridge and furrow, or the bed system, when there was not sufficient surface-slope to admit of the employment of the other methods. The latter was the most refined mode of applying sewage to land; and, although usually attended with more expense, there was much to recommend it. Narrow beds were to be preferred to those of large size, as being more economical to form, and calculated to turn the sewage to the best account.

BIRMINGHAM CORPORATION BUILDINGS COMPETITION.

SIR,—The twenty-nine authors of the designs delivered pursuant to advertisement three months ago may prepare themselves to submit to all the arts of trifling and trickery which may be expected from "Bruggagem." The Estates Committee six weeks ago arrived at a decision how the premiums should be awarded; but some corporation friends of local disappointed candidates have been moving by various means to prevent the Town Council ratifying the award. This body, at a meeting on the 24th of May, postponed to the 13th of June the special meeting to dispose of the business. This was bad enough in the face of the joint recommendation of Mr. Waterhouse and the Estates Committee; but I now hear that the manuscript of the resolution has somehow or other got *altered*, and the meeting to vote the prizes is thus indefinitely postponed. Is there no law that might be usefully set in motion to discomfort intriguers?

FAIRPLAY.

THE FINE ARTS, CAMBRIDGE.

THE Slade Professor of Fine Arts resumed his lectures at the Fitzwilliam Museum on Monday, the 22nd ult., when the subject was on "Stained Glass." Sir Digby Wyatt explained the whole process, from the plain sheet of glass to the perfect window, illustrating the details by diagrams. He afterwards pointed out the various modes of colouring the glass, and then treated his subject historically.

On Tuesday, the subject of the lecture was "Enamel," in which art the technical principles were more complex than those in stained glass. The lecturer took the opportunity to apologise for the apparently too technical nature of the lectures. He could not but think that in the present day we did not pay sufficient attention to the technical nature of our arts. However sublime the manifestation of the art, you could not apply the general principles of criticism unless you understood how the artist was limited in that particular specialty. The art of enamelling was really the application of glass to metal. The lecturer described the process of facing the metal with enamel, which was held by means of cavities in the metal. He then proceeded to distinguish between the different varieties of enamel, and to show the antiquity of the art, which was spoken of by Ezekiel. Turning to modern usage, mention was made of the application of enamel to iron for industrial purposes. The process was as yet only in its infancy. It began in humble application to pots and kettles, but now it has been found useful on a larger scale, and promises great industrial occupation. By means of the newly-invented gas oven, enamel could be produced 13 ft. by 3 ft.; whereas a century ago, a piece the size of a sheet of foolscap was the extent thought of. This new process of applying enamel to iron for other than ornamental purposes appeared to supply a desideratum very long wanted.

SCHOOL AND VICARAGE-HOUSE, SOUTHLEIGH.

THE new school and vicarage-house erected in this village are now completed. The school was the first work commenced, and the educating of some fifty children is now going on. The building may be described as having brick walls, the window-openings, doorways, gables, &c., being formed chiefly of Box stone. The school-room is light and airy, with open-timbered roof, stained and plastered between the rafters. The building is of Gothic character, and may serve as a model to those who wish to build a good and pretty yet cheap school.

The house contains upwards of twenty-two living and sleeping rooms, besides useful accessories. There are two good staircases, one of which is in the tower; this tower is upwards of 60 ft. high. The chief doorway is rich with columns, mouldings, carved capitals (by Mr. Knowles, of Oxford), and other work. In the refectory is a handsome fireplace, fitted with encaustic tiles of new design, and specially made by Mr. R. Minton Taylor, of Stoke-upon-Trent. The style of architecture set forth in the house is a development of the ancient Romanesque. Both the school and house have been built by Mr. C. Selby, of Oxford, from the designs and under the superintendence of Mr. John Gibbs, architect.

THE TRADES MOVEMENT.

Newcastle-upon-Tyne.—The strike of the engineers of Newcastle and Gateshead for the reduction of the hours of labour to nine per day commenced on Saturday, when about 9,000 men turned out, in accordance with the notice given. Policemen were stationed at one factory as the men left, but no disturbance took place. At the other factories the men cheered. The works are now locked up. The remainder of the men who have signified their intention of coming out will do so as their notices expire. Numbers of the workmen are under contracts to their masters, and the Nine-Hour League recommends them to fulfil them, if legally bound to do so. Messrs. Stephenson & Co., the great locomotive makers, have declined to accede to the demand for a reduction of the hours of labour to nine per day. Mr. Stephenson bases his refusal on the ground that foreign and home competition will not permit the reduction, and that serious loss would accrue from keeping valuable machinery idle. The firm employ 1,500 hands, and it is expected all will turn out. It is feared that the struggle will be long and severe. A communication has been made, however, to Messrs. Stephenson's workmen, to the effect that if they considered the system now in operation on the Clyde more favourable than that adopted on Tyneside, the firm would adopt the same number of hours. This proposed compromise was at once considered at a meeting of the men, and it was decided to take a vote as to whether the Clyde system of 57 hours is generally acceptable, or whether the men will strike for 54 hours. If the men turn out, it will increase the number on strike to nearly 12,000.——The joiners who turned out some weeks since are still on strike, and there are strikes or agitations in nearly all the trades of Newcastle and Gateshead. A largely-attended meeting of the Newcastle master joiners and house carpenters have resolved to continue to send away for more men. The masters appear more than ever determined not to give in to the nine-hours movement.

Hartlepool.—The carpenters at the extensive shipbuilding yards of Messrs. Denton, Gray, & Co., of West Hartlepool, and Messrs. Withey, Alexander, & Co., of Hartlepool (Middleton), have come out on strike, their demand for a concession of the nine-hours movement not having been conceded by their employers. Their total number is, we are told, little short of a hundred.

Leeds.—The Leeds carpenters and joiners are agitating for a reduction of hours to nine per day, and an increase of wages. It is believed the masons, bricklayers, and plasterers will follow.

Sheffield.—At a meeting of the committee of the Painters' Union, the resolution passed at a meeting of the master painters, held a few days before, was taken into consideration. The masters had agreed to give 6½d. per hour to the better workmen, and 6d. per hour to others. The committee in accepting, on the part of the men, 6½d. per hour as the standard wages of the town, also passed the following resolution:—"That we, the operative painters, tender our sincere thanks to the honourable master painters of Sheffield who, with the true spirit of liberalism, treated with their men as a body, in a manner most satisfactory to all parties concerned." The men, we understand, now regard the dispute as practically at an end.

APPLICATION OF COLLODION.

SIR,—I read an article in your paper, titled a "Novel Application of Collodion," by M. Kieffel, of Berlin.

I beg to claim the right, by priority, of that invention, practised by me, and patented the 25th of June, 1869, applied to the decoration of cements, compositions, &c., for architectural and other purposes. I have a most comprehensive system for that and kindred purposes, as chromographs and other decorations.

EDWIN ROBBINS.

NEW BUILDING ACT AND FIRE-ESCAPES.

SIR,—A few words as to the controversy upon fire-escapes to houses. Your correspondents have evidently not seen the proposed new Building Act that the Metropolitan Board of Works have tried several years to make law. True, there is a clause that means of escape from houses are to be provided, but then the new method of measuring the heights of walls and houses impedes the escape clause. All walls are to be measured from the base up to the top of the wall (not topmost ceiling, as in present Act); in which case, to save extra thickness, walls will generally be carried up to the roof only, and there will be no parapets. So that, unless flats are formed on top of roofs, and the front and back stacks of chimneys separated, there will not be much opportunity of having fire-escapes in the upper part of houses. Iron balconies may be formed between the top windows of adjoining houses. However, it is not too late for the Board to alter their clauses as to height of walls, and no doubt many other clauses will have to be modified before they become passable.

Y.

THE MULLINGAR EPISCOPAL RESIDENCE COMPETITION.

SIR,—On receipt of the circulars, on the 16th ult., from the secretary of the Building Committee, rejecting all the plans, I sent for mine to be returned, but they are still retained. I can only say that there has been plenty of time to smuggle ideas from one and all of the designs with impunity.

A COMPETITOR.

DECAYING STONEWORK.

SIR,—Can you help me to find a remedy for decaying stonework in a building of brick and stone, the stone of which is decaying fast. I shall feel greatly obliged for any information derived through your valuable columns suggestive of remedy for yours,

A DILAPIDATED STONE WALL.

*** Evidence as to the real value of any of the systems at present before the public is still wanting.

WHERE IS THE PIMLICO CLUB?

SIR,—It was stated in your columns, a few weeks ago, that we have now two associations for promoting working men's clubs. Will you allow me to ask, through the same medium, what has been done with the gift of the late Marquis of Westminster, two years ago, of 1,000*l.* and a site, to build a club and institute in Pimlico?

Various reports are in circulation, and about twelve months ago there was handed about the neighbourhood a set of drawings, by an eminent architect, for a building that would cost 10,000*l.*! As it has not been carried out, we suppose it was abandoned; but somebody would have to be paid, and what we fear is that the money will be frittered away in this manner, and the trustees in thus "grasping at a shadow," will lose (for us) the substance.

A PIMLICO WORKMAN.

CLEARING GULLIES *VERSUS* CLEANSING SEWERS.

SIR,—As your paper is the leader in all sanitary improvements, permit me to point out an evil, and to suggest a remedy. It has occurred to me that there is much wanting under the above heads. Most people will admit that the present disgusting, injurious, expensive, and *ineffectual* mode of clearing gullies is a disgrace to an age

that prides itself on its sanitary engineering. First, we smell, then we see, a cartload or more of putrid matter lying in all our streets for hours, at all seasons, poisoning the air, and shocking the sight; its day-work stroke of removal being a most tedious process. The appearance of the black filth leads to the question, how long has it been accumulating? From my experience in country and in town, I feel little hesitation in asserting that there are no such things as cesspits, *in effect*,—that is to say, the detritus, &c., is allowed to consolidate *level* with the outlet to the sewer; then follows, as a natural consequence, the second, costly, tedious, and injurious necessity of cleansing sewers. I may be told there is this and that patent gully. I flatter myself I have seen all; and, admitting there are improved means of emptying gullies, yet the great *desideratum* appears to me to be an *indicator* of the amount of detritus, &c., in the cesspits. The emptying should follow; and, instead of smelling and seeing what we do, I believe a great sanitary and economical reform would ensue. T. G.

WATER! MORE WATER!

IN these thirsty days, when—"Water! more water!" is the London cry, you would probably confer a boon upon the city, by giving place to the following proposals for a new source of supply:—I have lately returned from a prolonged tour in Italy, and have specially marked the care with which rain-water is utilised. In Venice every drop of rain-water is made potable, and in almost every castle and monastery throughout Italy there is a well capable, under ordinary circumstances, of supplying the inmates. The means of attaining this object are both simple and inexpensive, viz.—two twin-wells, a foot or two apart, with one or more thin partitions filled with porous slabs that act the part of filters. The rain-water is made to run into well A, and to pass through the filters into well B, which should be deeper than the other in proportion to the demands on it.

Every area and courtyard of London might have such a supply of the best potable water, for the filters would effectively exclude the usual impurities of the house-tops, and such porous tiles could be made in every pottery about town.

Where the London clay is the superficial formation, very little masonry would be required. Where gravel prevails, of course a water-proof lining of cement would be necessary. In such reservoirs water would remain pure and unchanged for any time. AQUARIUS.

SCHEME OF THE ROYAL SANITARY COMMISSION.

AN important document, embodying in considerable detail the views of the Royal Sanitary Commission as to the best machinery by which "constant and universal supervision of the essentials of public health,"—viz., the food, the water, and the air of the people,—by competent persons, can be efficiently and economically secured throughout the country, has just been made public. The document, entitled "Memorandum on Medical Officers of Public Health," reiterates, in the first place, the unanimous opinion of the commission that "every question affecting public health should be brought into relation with one central office presided over by a minister," and goes on to point out that every district in respect of its health should be,—

"As closely connected with the said department of health as is every part of the country with the Home Office through the police and the magistrates, and as are the destitute with the Poor Law Board through the guardians, &c.;" and that every person should "henceforward be entitled in respect of his health to such reasonable public protection as he is in respect of his liberty and his property."

The Commissioners believe that there should be six permanent departments under the Minister for matters connected with the law of local government, engineering questions, registration and statistics, the relief of the poor, the medical care of the public health and the poor, and legislation bearing on the profession of medicine. The Commissioners affirm that the plan would work well and economically, inasmuch as the action of the several departments would be mutually related and complete. A recommendation to establish laboratories for public analysis in such towns as Oxford, Cambridge, Leeds, Newcastle, Bristol, &c., to be supported by public grants, is also made, as also to bring the naval and military medical services in direct relation to the Central Health Office, which, lastly, would be able by accumulating accurate data to diffuse early, valuable, and trustworthy information touching the cause and the prevention of disease.

MONUMENTAL.

THE full-length bronze figure of the late General Outram has been hoisted on to the pedestal erected for it in the ornamental garden on the Thames Embankment, near the Charing-cross Bridge, and it will shortly be uncovered. The height of the monument is about 20 ft. The pedestal is of polished granite, and its four corners are ornamented with trophies of arms, shields, and warriors' head-coverings, executed in bronze, typical of the races the gallant officer was opposed to in his campaigns.

Alderman Rawcliffe has applied for the permission of the Preston Corporation to place a statue to the memory of the late Lord Derby in one of the Preston parks. He said that a short time ago a working-men's penny testimonial was originated, and they had now 300*l.* in hand. The proposed statue would cost between 800*l.* and 1,000*l.*, and it was the wish of the executive committee that the statue should be placed in one of the parks of Preston. Alderman Goodiar referred to a second statue which was either to be erected in the Shire-hall, Lancaster, or the Town-hall, Preston. Mr. Alderman Rawcliffe said that for the statue Mr. Goodiar had spoken of, the sum of 1,200*l.* was already in hand. The sculptor was at present unwell, but on his recovery he would visit the two buildings named, and decide in which the statue would be best placed. The application was unanimously granted.

The author of "Local Sketches," writes:—"On paying a recent visit to the grave of Charles Lamb, in Edmonton Churchyard, I found it certainly *not* in the state an admirer of 'Elia' would wish to see it. The mound beneath which he and his loving and beloved Bridget lie is half-trodden down and broken, and what is left of it is anything but 'the bank, where daisies grow,' as Moxon wrote. To remove the gaunt nettles and to order new turf was my first object; but something more requires to be done. In a year or two, unless the letters are recut, the words of the inscription will have passed away."

CHURCH-BUILDING NEWS.

Ellesborough.—The church here, after restoration and enlargement, has been reopened by the Bishop of Winchester. The building, which is finely situated on the spur of one of the chalk hills, between Aylesbury and Wendover, and consisted of nave, south aisle, and porch, chancel, and of a tower at the south-west corner, has been enlarged only by the addition of an organ-chamber and vestry, on the south side of the chancel. With the exception, however, of the north and west walls of the nave and arcade, the church has been entirely rebuilt,—the tower at the cost of about 1,150*l.*, by the late Lady Frankland Russell; the chancel and chancel-aisle, at a cost of about 1,200*l.*, by Mrs. Astley, of Chequers-court; and the south aisle, porch, and portions of the nave, at a cost of about 1,800*l.*, by subscriptions from the last-named lady and friends, and from the parishioners, largely aided by the rector, the Rev. J. H. R. Sumner. The church is dedicated to St. Peter and St. Paul, and is chiefly of the Perpendicular period, with many local features. All the walls, till lately covered with a coating of cement, have been refaced, as originally, with flint, with Bath-stone dressings, in place of the chalk, which was much decayed and defaced. The walls are generally lined with Bath stone and with chalk. The chancel-roof, of the original steep pitch, is of oak, covered with green slates, as are also the chancel-aisle and porch-roofs. The nave and aisle roofs are almost a reproduction of the ancient flat roofs, covered with lead. Mr. Bromfield, of London, has executed the carving throughout the church, including figures of the twelve Apostles, St. Peter and St. Paul, our Lord, &c. The body of the church is fitted with open benches, of pitch pine, varnished; the chancel, with oak throughout; and accommodation is provided for 234 persons. The passage-spaces are laid with Godwin's tiles and old inscription-slabs. The restoration of a monument in the south aisle has been executed by Messrs. Burke, of London. One of the north windows of the nave has been filled with stained glass, designed and painted by the architect, and another, in the south wall of the chancel, by Messrs. Burlison and Grylls. An organ is in course of building, by Messrs. Bryceson. The five bells have been re-hung in the tower, by Mr. White, of Besselsleigh, and a new bell added to complete the peal of six. The church is now heated with hot water, by Mr. Vincent Skinner, Stokes Croft, Bristol; and Mr. Leaver, of Maidenhead, has executed the ornamental wrought-iron work of the doors. Mr. Giles Holland, of Thame, carried out the several building contracts, under the direction of Mr. Preedy, of London, architect.

Pilton.—The ancient church here has been re-opened for divine service. The edifice, which ranges from the Norman to the Tudor style, has for some time past been undergoing a restoration, at a cost of 2,300*l.* The entire roof has been taken off and repaired, and about half of the roof of the aisle is new. The roofs are of carved oak; the new piece is a counterpart of the original. A stained-glass window has been presented by Mr. R. Clerk, of Westholme House, and several other stained windows have been put up in various parts of the church, from the manufacture of Messrs. Horwood, of Frome. A new pulpit and font, carved by Mr. Herley, of Wells, have also been erected. Messrs. Hart & Peard, of London, have supplied a lectern, and a new altar, carved, has been presented by the Rev. T. P. Nunn, vicar of West Pennard. The galleries have been taken away, and new open benches of polished pine have been placed al hrough the church. The arch at the southl entrance has been restored to the Norman style and the Early English doorway on the northern side with the Early English arcade has been similarly treated. The architect of the restoration, except the chancel, was Mr. A. E. Gough, of London. The chancel was undertaken by the Ecclesiastical Commissioners, and carried out under their architect, Mr. E. W. Christian.

Dorking.—We understand that Mr. Woodyer, architect, has had an interview with the committee for the rebuilding of St. Martin's Church, Dorking, and has been instructed to prepare plans for the same forthwith. The estimated cost is about 12,000*l.*

Waterbeach.—Six months ago the old stone church at Waterbeach, dedicated to St. John the Evangelist, was closed for the purpose of being restored. The contract was undertaken by Mr. R. Tooley, of Bury St. Edmunds, who has carried out the plans of Mr. W. M. Fawcett, of Cambridge, architect, and the work is so far completed as to enable the edifice to be re-opened for divine service. The present restoration is only partial, but has cost something like 900*l.* To complete the work will require a further outlay of 600*l.* to restore and enlarge the north aisle, at present untouched. The exterior of the leaden roof has been renovated, and the walls of the south aisle and nave have been newly faced with rustic work, having stone facings. The mullions of the windows on this side have likewise been replaced in several instances, and new buttresses erected. Coming to the interior of the building, the roof of the south aisle was renewed. The old roof in the nave has been varnished. The church has been reseated with square-top oak pews, having tracery panelled ends, and in the chancel there are some choir-stalls. The walls have been re-stuccoed, and the clunch columns and arches in the nave renovated where requisite. The flooring consists of red and black Staffordshire tiles in the nave and aisles, and Minton tiles in the chancel. At the eastern end of the south aisle is a stained glass window. The glass is said to have come from the clearstory windows. In the renovated chancel, on the south side, stands a new organ, built by Messrs. Gray & Davison, of London. The work of this partial restoration has been under the superintendence of Messrs. Doo & Ayton, of Bury.

PROVINCIAL NEWS.

Cliffe, near Rochester. — The tender of Mr. J. G. Naylar, of Rochester, has been accepted to restore and enlarge the present Rectory House for 2,000*l.* The architect is Mr. J. P. St. Aubyn.

Hazel Grove.—The new Mechanics' Institution at Hazel Grove has been opened according to the *Macclesfield Courier*. Mr. Wm. Adshead, the honorary secretary, stated that for the erection of the institution Mr. W. J. Legh, M.P., had given land and buildings worth 150*l.*, and the amount raised up to the present time, exclusive of that gift, was 831*l.* Of that sum the village of Hazel Grove and its immediate neighbourhood had contributed 524*l.*, the number of contributors being about 200. The contract for the erection of the building amounted to 1,040*l.*, and that for the fittings to 160*l.*, which made a total

liability of 1,200*l.*, leaving a debt on the institution of 368*l.*

Petersfield.—New schools have been opened at Blackmoor by Sir R. Palmer, M.P. The architect was Mr. A. Waterhouse. He has grouped all the several buildings of church, vicarage, schools, and cottages, so that a pleasing effect might be produced. The external walls of all these buildings are built of stone quarried on the estate, with Bath dressings. Mr. Hore Kemp executed the mason's work of the schools, Mr. George Finch, the carpenter's work, Mr. Haunsom the staining and painting, Mr. Odell the glazing, and Mr. J. Finch superintended the works. The large schoolroom measures 60 ft. by 25 ft. and 18 ft. high; the large class-room 17 ft. by 14 ft., and the infant school 24 ft. by 17 ft., with schoolmaster's residence, large playground and exercising yards, and the necessary offices. Every care has been taken by the architect for perfect ventilation and heating. Mr. Ginger supplied one of Gill's stoves for the large school, and Mr. Boyd one of his own for the small school.

Bristol.—A new banqueting-hall is now nearly completed in the rear of, and in connexion with, the White Lion Hotel, Broad-street. The room will hold 300 people. The apartment measures 80 ft. in length by 40 ft. in width, and 35 ft. in height. It will be elaborately decorated. The room will be lighted by coloured glass windows in the day and powerful sunlights at night.

Hatfield Heath.—The foundation-stone of a new mansion to be erected on the site where Down Hall has long existed has been laid in the presence of Sir Henry and Lady Selwin Ibbetson, Mr. Cockerell, the architect, and others. The stone was laid by Lady Selwin Ibbetson, who handled the trowel as if she were accustomed to the work, but, to the amusement of the audience, her ladyship received several injunctions to strike the stone with greater force.

Books Received.

The Haydn Series: a Dictionary of Science. Edited by G. F. Rodwell, F.R.A.S., F.C.S. London: Moxon & Co. 1871.

WHEN we state that besides the editor, who contributes an able Introductory Essay, the article on Heat, and miscellaneous articles; Mr. Proctor, F.R.A.S., is the author of those on Astronomy, Meteorology, and various others; Mr. Crookes, F.R.S., wrote those on Light and Chemistry; and so on,—enough is said to secure confidence in the work as a Dictionary of Science, so far as its limits of nearly 600 pages, in close but distinct type, extend. The scope of the work is general as regards the physical sciences, but does not include the abstract sciences of algebra, geometry, &c., and the classificatory sciences of botany, zoology, &c. Mr. Tomlinson and Mr. Bottomley contribute various articles relating to molecular physics and theoretical chemistry, and there is one on Musical Intervals by two competent authors.

Miscellanea.

Oxford Architectural Society. — The second excursion this term has been made to Bicester, Middleton, and Chesterton. The members were received at Bicester by the Rev. J. W. Watts, the vicar, who conducted them over the church, and drew attention to the chief points of interest. The vicar conducted the party to view the remains of the priory. They then proceeded to Middleton, where they were received by the vicar, the Rev. C. F. J. Bourke. The church was described by Mr. Bruton. The inspection of the paintings in Middleton House had been offered to the members by the Earl of Jersey, and though time was limited, and an additional mile was thereby added to a very long walk, and notwithstanding that many of the party were ladies, it was unanimously determined that the liberal offer of the Earl should be accepted, and the entire party proceeded to view the pictures. They regretted, however, that it was impossible, with the limited time at their disposal, to do justice to it. Passing through the park, the party made their way to Chesterton, where the vicar, the Rev. W. F. Fortescue, had prepared refreshments. The church was then visited. It was intended to have visited the Roman camp at Alchester, but time did not permit.

Salary of Architect and Surveyor to Sheffield School Board.—For the services a salary of 100*l.* per annum was proposed at the last meeting; and for preparing designs of new schools and superintending their erection, a commission of 5 per cent. to be further paid on the expenditure. On the minutes of the building committee coming up for confirmation, Mr. Eadon objected to the salary: 20*l.* a year would be amply sufficient. Mr. Moore said, when they had erected the schools required, the salary might be reduced, but for the first three or four years the salary ought to be much more than 100*l.* a year. Mr. Wardlow considered the proposed salary was excessive, and that there was no architect in the town who would not undertake to do all the work required without any salary, provided he received a commission of 5 per cent. upon new buildings and alterations. An amendment, making the salary 50*l.*, was lost, four voting for it and eight against. It was then resolved that an architect and surveyor be appointed under the conditions set forth in the committee's recommendation; and it was further resolved that an advertisement to this effect be inserted in the local papers. Personal canvas will disqualify any of the candidates.

Report on Water Supply for Birmingham.—Mr. Robert Rawlinson, C.B., has reported, at the request of the local authorities, on the best mode of improving the water supply of Birmingham, and the report has been printed and circulated. Mr. Rawlinson recommends a totally new source of supply, from the rivers Elan and Claerwen in Cardigan and Radnor, Mid-Wales, with reservoirs and conduit, for supply by gravitation to certain towns on the way, as well as to Birmingham; and that the waterworks should be in the hands of the corporation. The length of conduit would be about eighty miles, made up of forty-one miles of masonry aqueduct, twelve miles of tunnel, and twenty-seven miles of iron pipes in valley crossings. The works could supply 40,000,000 gallons daily, at an estimated cost of 2,765,380*l.*, but 20,000,000 gallons could be supplied through the same masonry conduit at an estimated cost of 1,784,720*l.* To supply the same quantity from the Teme by gravitation, and other improvements of the present supply, Mr. Rawlinson estimates at 1,368,000*l.* The net present value of the present company's works has been taken at 600,000*l.* in preparing the estimates.

Handel Festival: Crystal Palace.—The result of recent rehearsals, if we are informed aright, tends to the belief that the commemoration of 1871 will produce no mere mechanical rendering of the great composer's works, but an absolutely perfect and intellectual exposition, by a highly-trained, experienced, and accomplished body of artistes, produced with the assistance of extraordinary resources never on any former occasion brought into such perfect and gigantic combination. The directors have reason to be in the highest degree satisfied with the improved acoustical qualities of the centre transept, which will tend very materially to enhance the general effect of the solos not less than that of the choruses. No one who has heard the opera concerts of the present summer can fail to have been struck with a very perceptible improvement in the clearness of the tone. Messrs. Gray & Davison's organ, in view of the approaching event, has been proportionately enlarged,—in fact, for the first time completed according to the scale of the original design,—so that its accompaniment may be in every respect worthy of the occasion.

The Tenders for the Brighton Townhall Alterations.—At a special meeting of the Town Council, the committee reported that the tender to perform the work for 2,617*l.* was accepted on the 3rd ult., but on the 16th, when the contract was submitted for signature, Mr. Nightingale refused to sign unless certain alterations were made in the specifications. The committee, therefore, proposed to cancel the agreement, and accept the tender of Mr. G. R. Lockyer, of Brighton, which was the next lowest. Resolutions rescinding the agreement with Mr. Nightingale and accepting the tender of Mr. Lockyer were carried unanimously.

Gutter Children.—We are glad to hear that at the last meeting of the School Board two beadles were appointed, for the purpose of taking children who are liable to be sent to industrial schools, before magistrates, with a view to their being so sent.

Chester Archæological and Architectural Society.—A meeting of this society has been held at the Old Episcopal Palace, Abbey-square, when Mr. Thomas Hughes read a paper on "Chester in its Early Youth: being a Glance at the Colony of Deva, as seen by the Light of the Roman Remains discovered there in Past and Present Times." The entire Roman collection in the society's museum was exhibited at this meeting; and, through the kindness of the Marquis of Westminster, the two fine Roman altars, the inscribed pig of lead, and the celebrated gold torque, from Eaton, were submitted to the society's notice for the first time. The collections of Mr. Frederick Potts, and the Water Tower also contributed specimens in illustration of the paper. There was a large attendance, including the Rev. Canon Kingsley, Professor Max Müller, Mr. H. C. Raikes, M.P., &c. The Rev. Canon Kingsley, on the motion of Mr. Wynne Ffoulkes, took the chair. After the reading of Mr. Hughes's paper, Mr. Wynne Ffoulkes read one on "Torques."

The Destructive Doings in Paris.—Now that the fiendish work of the Communists in Paris is at an end, perhaps the dominant feeling is thankfulness that wretches capable of such purely malicious doings have not done their destructive work still more thoroughly; and that the Sainte Chapelle, the Louvre and its art-treasures, Notre Dame (it is to be hoped), the Pantheon, the Foreign Office, the Ministries of Marine and of the Interior, the Bank of France, and other public buildings have not also been all destroyed. As it is, the catalogue of losses is a heavy one, including, as it does, the Tuileries, the Hôtel de Ville, the Ministry of Finance, the Prefecture of Police, the Cour des Comptes, the Palace of the Legion of Honour, and the Mont de Piété, besides so many streets and houses almost ruined. The loss of the Louvre library, too, is one to be regretted. The chief streets built during the Empire were too solidly constructed, with stone and iron, to have been easily burnt, even with the devilish help of petroleum.

Liverpool River Approaches.—The subjoined statement, with plans and coloured drawings of the various schemes for improved approaches to the river, has been exhibited in the Exchange Newsroom at Liverpool:—Dock Engineer's plan E 1, as per Bill No. 2, now being promoted in the House of Commons; expenditure to be incurred by Dock Board as per Mr. Lyster's estimate, 143,500*l.*; expenditure required by Liverpool corporation, namely, removal of a portion of St. Nicholas's churchyard, the adjoining buildings, and the Goree warehouses, so as to widen the dock road sufficiently to take the traffic, see Mr. Lyster's plan of 1866, 260,000*l.*; total cost of plan E 1, 403,500*l.* Mr. C. G. Mott's plan—Value of land to be sold for offices and other buildings, 408,000*l.*; less cost of works as per engineer's estimates, including the new George's Dock, 240,000*l.*; value of land over cost of works, 168,000*l.*; total saving to Liverpool if Mr. C. G. Mott's plan is adopted in place of plan E 1, 571,500*l.*

Coincidence in Names. — Two names, which at this moment are attracting much attention, and occupying much space in the daily journals, apparently very unlike, are identical in origin and meaning, Tichborne and Kidbrooke. Tich, or Titch, being from *ticcen*, a kid; and borne, with its varieties of spelling, —bourne, bourn, born, burn,—being a common retention of an old word for brook or rivulet. Tich is not a common prefix, but it occurs in *Ticehurst*, Sussex; in *Tichmarsh*, Northamptonshire; in *Tichborne* and *Titchfield*, Hampshire; and in *Titchwell*, Norfolk. It is said that 22,000 persons visited Kidbrooke-lane on Whit-Monday. We can only lament the misuse of a fine holiday.—A. J.

Whitechapel District Surveyorship.—Mr. S. W. Iron and Mr. Arthur Harston have announced themselves as candidates for the office of Surveyor to the Whitechapel District Board of Works, vacant by the death of Mr. Fricker. Mr. Iron, who is a vestryman of Mile-end Old Town, and, till Easter last, was churchwarden of St. Philip's district church, was for several years assistant-surveyor in Mr. Fricker's office. Mr. Harston is a member of the Limehouse Board, and was for eight years in the office of Mr. Dunch, surveyor to the Limehouse district. There is also some mention made of Mr. Hudson as a probable candidate.—*East London Observer.*

Wells Cathedral.—A meeting of the General Committee for restoring the west front of this cathedral was held on the 23rd ult., at the residence of the Earl of Cork, in Grafton-street. The architect, Mr. Ferrey, was in attendance, and having reported that the works were steadily progressing, and that the central portion would be finished in August next, the committee instructed him to obtain a tender from the contractor for the execution of the second or south-east section of the works. The attention of the committee having been called to the dilapidated state of some of the statues of the west front, Mr. Ferrey was directed to prepare a detailed report on the condition of the whole of them.

Wednesbury New Town-hall.—"J. G." wishes to draw attention to the condition of this building, now in progress. He says,—"When the work was commenced the builders could not find a proper foundation for one side of the building: so an additional sum was asked by the architect, which was granted. The building progressed, and is now ready for the roof. But what is really the state of the building? The fact is, two sides have given way, and the building is cracked and otherwise damaged. There is a fear, when the roof is on that the whole building will give way. I think the attention of the members of the Board should be directed to the state of the building."

The Sewage of Exeter.—A lease of this sewage has been granted to a public company for twenty-five years, who propose to utilise it according to the plans of Mr. Proctor Sherwin, C.E., upon the irrigation principle. The sewage will be conveyed by means of a conduit under the River Exe, and will then be pumped by two 40-horse power beam engines, so as to irrigate some 600 acres of land, which have been secured for that purpose. Mr. W. Hope will lay out the land for the company. The entire cost of the irrigation work (exclusive of the land) will not exceed 25,000*l.*, for which sum Mr. S. Hassel has undertaken their execution.

Epping Forest and the City Authorities. It seems that the City Corporation are anxious to have the honour of securing all that remains of Epping Forest, 3,500 acres, for the benefit of the people. The Court of Common Council, on the motion of Mr. J. T. Bedford, have referred the subject to the Coal, Corn, and Finance Committee to wait upon or communicate with her Majesty's ministers as to the terms and conditions upon which the forest can be preserved from further spoliation.

Oxford-street to Charing-cross.—At the last meeting of the Metropolitan Board of Works it was resolved to apply to Parliament for power to pay 200,000*l.* towards the cost of the proposed new road, to be constructed by the London and North-Western Railway Company, from Tottenham-court-road to Charing-cross. The total cost of the new road is estimated at 540,000*l.*

Society of Engineers.—At the next ordinary meeting of this society to be held on Monday evening, 5th June, a paper will be read on "The Timbering of Trenches and Tunnels, applicable to Sewerage or Railway Works," by Mr. Charles Turner, to whom the premium offered by the President has been awarded by the Council.

Proposed Opera House for Copenhagen. A design is to be chosen in competition, and some English architects appear to be about to send drawings. We conclude, from a paragraph in a daily paper, that the names of competitors are not to be withheld from the judges.

TENDERS

For rebuilding two houses and shops, in Edgware-road, for Messrs. Pocock, Brothers. Mr. Wm. Berriman, architect. Quantities supplied:—

Perkins	£1,355 0 0
Green	1,250 0 0
Tarrant	1,249 0 0
Fisher	1,197 0 0
Maryland	1,166 0 0
Sharp	1,154 0 0
Ingram	1,140 0 0
Elsdon	1,089 0 0
Cooke	1,077 0 0
Gibbs & Son	939 0 0

For reinstatement after fire, at the oil-mills, Hammersmith. Mr. G. H. Simmonds, architect:—

Williams, Bros.	£1,480 0 0
Chamberlain, Bros.	1,259 0 0
Grover	1,160 0 0
Wicks & Bangs	1,095 0 0
Jacobs	1,070 0 0
Adamson	1,050 0 0
Mortar	847 0 0

For alterations and additions to Mr. White's house, Cuckfield, Sussex. Mr. T. Cane, architect:—

Jeffery	£245 0 0
Anscombe	240 0 0
Deacon	239 0 0

For building villa residence, on the Crystal Palace Park Estate, Sydenham, for Mr. J. Kendry. Mr. J. Norton, architect. Quantities by Mr. S. J. Thacker:—

Peskett & Taylor	£2,430 0 0
Nightingale	2,314 0 0
Dover, Dowel, & Co.	2,301 0 0
Cooke	2,250 0 0
Pollard	2,235 0 0
Smith	2,198 0 0
Heath, jun.	2,189 0 0
Cooke & Green	2,178 0 0
Taylor	2,126 0 0
Capps & Ritso	2,110 0 0
Gooding	2,094 0 0
Watson, Brothers	1,930 0 0
Hughesdon	1,930 0 0
Whiting	1,919 0 0
Crossley	1,898 0 0
Waterson & Co.	1,880 0 0
Crook & Wall	1,845 0 0
Moore & Grainger	1,705 0 0

Accepted, for the erection of a parsonage-house at Holmesfield, for the Rev. T. Hirst. Mr. S. Rollinson, architect:—

Excavator's, Mason's, Bricklayer's, Slater's, Plasterer's, Smith's, and Founder's Work.

Wright & Boler	£670 0 0

Carpenter's, Joiner's, Plumber's, Glazier's, Painter's, and Stainer's Work.

Elliott	£403 0 0

For the erection of guildhall, police-station, museum, and other buildings, at Winchester. Messrs. Jeffery & Skiller, architects. Quantities by Mr. Thos. Ladds:—

Blackburn	£13,350 0 0
Dowel & Co.	13,120 0 0
Smith	12,995 11 8
Brinton & Bone	12,350 0 0
Hagon	12,204 0 0
Harrison & Son	11,860 0 0
Macklin	11,689 0 0
Carter	11,280 0 0
Sollett	10,987 0 0
Dugay	10,900 0 0
Quick	10,874 0 0
Finch	10,525 0 0
Dallimore	10,520 0 0
Bull & Sons	10,496 0 0
Newman & Son	10,475 0 0
Sibley	10,327 0 0
Barnes & Moody	10,313 0 0

For masters' residences and boys' schools for St. Barnabas, Pimlico. Mr. F. W. Hunt, architect:—

	Schools.	House.
Richardson	£2,481 18 9	£1,707 14 6
Jackson & Shaw	2,281 0 0	1,592 0 0
Haylock & Son*	2,136 0 0	1,480 0 0

* Accepted.

For rebuilding the Holborn Branch Bank, for the London and County Banking Company. Mr. C. Jocelyn Parnell, architect. Quantities supplied by Mr. James Schofield:—

Simpson	£6,660 0 0
Conder	6,575 0 0
Hill & Sons	6,573 0 0
Perry & Co. (accepted)	6,501 0 0

For repairs to the water-towers, Crystal Palace, Sydenham. Mr. C. H. Driver, architect. Quantities supplied by Mr. T. Nixon:—

Laing	£3,880 0 0
Chappell	3,500 0 0
Downs	3,499 0 0
Brice	3,480 0 0
Nixon & Son	3,396 0 0
Jackson & Shaw (accepted)	3,193 0 0

For alterations and new buildings for a new brewery, at Lower Tooting, exclusive of founder's work, engines, boilers, &c., for Messrs. Attlee. Mr. Arthur Kinder, architect. Quantities supplied:—

Rudkin	£2,325 0 0
Late	2,203 0 0
Williams	2,177 0 0
Deacon	2,090 0 0
Foss & Blackshaw	1,889 0 0
Norris	1,858 0 0
Kelly, Bros.	1,853 0 0
Moultrie	1,830 0 0

For Edmonton main drainage, Middlesex. Mr. G. Eedes Eachus, engineer. Quantities supplied by Mr. Driver:—

Waller	£47,682 0 0
Webster	44,000 0 0
Stiff	41,000 0 0
Parnell	40,809 0 0
Kyan & Co.	39,918 0 0
Walker	38,621 0 0
Hill, Keddell, & Waldram	38,566 0 0
Anderson & Dunmore	36,425 0 0
Bloomfield & Morris	35,975 0 0
Ritson	34,750 0 0
Wainwright & Wilson	33,880 0 0
Marshall	33,690 0 0
Riley	33,500 0 0
Pearson	33,333 0 0
J. & J. Haynes	33,000 0 0
Moore*	31,730 0 0
Brown	32,000 0 0
Neave	31,830 0 0
Chappell	29,950 0 0
Sibsey (accepted)	28,124 0 0
Wigmore	27,700 0 0

* Exclusive of work under the New River.

For drainage and road-making, for the Enfield Burial Board. Mr. T. J. Hill, architect:—

Porter	£3,800 0 0
Pizzey	3,325 0 0
Patman, Bros.	2,648 0 0
Shurmer	2,499 0 0
Bayes & Co.	1,582 0 0
Bugbird	1,555 0 0

For villa residence, at Dartford, for Mr. J. C. Hayward. Plans, specifications, and quantities by Messrs. Habershon & Pite:—

Rendall	£2,521 0 0
Cobham	1,956 0 0
Goddard	1,915 0 0
Jeffreys	1,871 0 0
Harrison	1,825 0 0
Tongue	1,800 0 0
Naylor	1,790 0 0
Gambrill	1,765 0 0
Rooney, Bros.	1,750 0 0
Dover, Dowel, & Co.	1,727 0 0
Perry	1,690 0 0
Groom & Davis	1,690 0 0
Blake	1,678 0 0
Blackmore	1,673 0 0
Perrigor	1,630 0 0
Hughesdon	1,625 0 0
Lose	1,615 0 0
Blackburn	1,591 0 0
Watson, Bros.	1,580 0 0
Cooke	1,560 0 0
Gooding	1,550 0 0
Crooke & Wall	1,540 0 0
Wyatt	1,475 0 0
Whiting	1,450 0 0

For the erection of a warehouse in Southwark-street, Borough, for Messrs. T. H. Bennett & Co. Mr. W. S. Witherington, architect. Quantities by Messrs. Linsdell & Giffard:—

Fish	£3,850 0 0
Ashby & Sons	3,170 0 0
Eaton & Chapman	3,167 0 0
Henshaw	3,147 0 0
Perry & Co.	3,129 0 0
Mark	3,125 0 0
Rider & Son	3,120 0 0
Elkington (accepted)	2,922 0 0

TO CORRESPONDENTS.

H. B. W. (shall appear).—W. C. A. (shall have attention).—W. L. G. (ditto).—W. H. C. (ditto).—T. C. N. (ditto).—G. A.—Mr. P.—C. F.—T. H. G.—W. R. C.—H. S. & Co.—G. W.—H. H.—J. N.—F. B.—W. W. J.—R. A. & Co.—J. Y.—T. L.—E. N.—E. A. H.—E. W. T.—J. G.—M. D.—Genl. H.—J. W. H.—S. S.—J. B.—A. J.—H. G.—T. N. E.—E. H.—E. J.—C. N. McI. N.

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ST. PANCRAS IRON WORK COMPANY, Old St. Pancras-road, London, N.W.

LOUGHTON PARK, ESSEX.—Reserved for good private Residences.
MR. EDMUND LITTLER will SELL by AUCTION, at the CROWN INN, Loughton, on WEDNESDAY, JUNE 21, at SIX for SEVEN o'clock, PLOTS of FREEHOLD BUILDING LAND, varying from one-eighth of an acre to one acre, with southern aspect, commanding extensive views over hill and dale. The Railway Station adjoins the Estate. Roads and sewers made, and water laid on. Nine-tenths of purchase-money may remain at 5 per cent; to be paid off by instalments.—Particulars of Messrs. GELLATLY, SON, & WARTON, 2, Lombard-court; and of the Auctioneer, Plaistow.

To Carpenters, Builders, and Others.
MESSRS. B. ABBOTT & SON will SELL by AUCTION, on MONDAY, the 5th of JUNE, at ONE for TWO o'clock, at GLENGALL-ROAD, near the Lord Nelson, Old Kent-road, a quantity of NEW TIMBER, Office and other fittings, long joists, door, slates, flooring boards, brass-mers, tiles, Portland and York paving, stoves, and other building materials.—May be viewed. Catalogues to be had on the Premises, or of Mr. E. REDDIN, Grove, Southwark-street; and of the Auctioneers, 74, Gracechurch-street, E.C.

PENGE.—On the London, Chatham, and Dover Railway, and the London, Brighton, and South Coast line, close to the stations, with trains to and fro daily, and intercommunication with all parts of town.—Freehold Building Land, with well made roads, and approached from and having a frontage to the High-street and main road to Dulwich.
MESSRS. EDWIN FOX & BOUSFIELD are directed to SELL by AUCTION, at the MART, Tokenhouse-yard, Bank, on WEDNESDAY, JUNE 14, at TWO precisely, in lots, a valuable FREEHOLD ESTATE, most advantageously placed, abutting on the London, Chatham, and Dover Railway, and close to the station on that line, as also to the station on the London, Brighton, and South Coast Railway, direct access being thus afforded to London Bridge, Ludgate-hill, and Victoria, and, with the Metropolitan line and Clapham Junction, with all other parts of the metropolis and its suburban districts. It comprises about eight acres, available at once for erecting numerous cottages and villas, the roads being well formed and sewered, and affording building frontage of over 3,000 feet, with adequate depth.—Particulars and plans are preparing; may be obtained of Messrs. CREE & LAST, Solicitors, 13, Gray's-inn-square; of C. E. BARLOW, Esq. Surveyor, 2A, Granville-place, Portman-square; at the Mart; and of Messrs. EDWIN FOX & BOUSFIELD, 24, Gresham-street, Bank, E.C.

On the WOOLFORD LINE. An important Freehold Estate, comprising a substantial and commodious Mansion, garden-grounds, and park-like meadow-land, 24 acres in extent, with a commanding frontage to the high road, and a frontage to a leading thoroughfare in the rear, close to the Leytonstone Railway Station, available for profitable and extensive building operations, together with commodious range of out-offices and farm-buildings, two ornamental semi-detached Residences, and two Cottages.
MESSRS. EDWIN FOX & BOUSFIELD will SELL by AUCTION, at the MART, Tokenhouse-yard, Bank of England, on WEDNESDAY, JULY 12th, at TWO o'clock precisely, the PARK, at Leytonstone, in the county of Essex, a valuable freehold estate, on the high road to London, a few minutes' walk from the Leytonstone Station, on the Great Eastern Railway: comprising a substantial family MANSION. It contains 12 capital chambers, dining and drawing rooms, each 40 feet by 16 feet; library and morning-room, billiard-room, entrance-hall, and complete domestic offices. The grounds surrounding the house comprise croquet and sloping lawns, and shrubberies, rosary and bowers, fine walled kitchen-garden, conservatory, orchard, and forcing-houses, &c.; stabling for five horses, large double coach-house, cow-houses, poultry-house, piggeries, &c. In the rear of the gardens are the park-lands, of about 20 acres, belted by well-grown trees, and adorned by a noble avenue of finely-matured limes. Two semi-detached Villas and two Cottages producing 63*l.* per annum. The estate, while offering many attractions for residence cannot but be regarded as particularly available for development.—Particulars may be obtained of OLIVER GREEN, Esq. Solicitor, 3, Mitre-court Chambers, Fleet-street; at the Mart; and of Messrs. EDWIN FOX & BOUSFIELD, No 24, Gresham-street, Bank, E.C.

MESSRS. EDWIN FOX & BOUSFIELD will SELL by AUCTION, at the MART, Tokenhouse-yard, Bank of England, on WEDNESDAY, JULY 19th, at TWO o'clock, the BUSH-HILL PARK ESTATE, Enfield, a magnificent building property, of 373 acres of finely-timbered land, for the most part freehold, picturesquely intersected by the New River, having four railway-stations within a mile, the fine old family MANSION, beautiful grounds out-buildings, modern farm-house, and homestead; a detached Villa, several Cottages, and the Roman Catholic Chapel in the town.—Particulars and plans are preparing, and may shortly be obtained, at the Mart; of Messrs. PALMER, ELAND, & NEITLESHIP 4, Trafalgar-square, W.C; and of Messrs. EDWIN FOX & BOUSFIELD, 24, Gresham-street, Bank, E.C.

PARTNERSHIP.—A young Man (32), thoroughly experienced in the building trade, practically and otherwise, is anxious to MEET with a BUILDER contemplating retiring, or where a bonâ fide business may be profitably extended.—Address, confidentially, stating particulars, to No. 683, Office of "The Builder."

WANTED, a PARTNER, with 150*l.* or 200*l.* to ASSIST in carrying on and extending a well-established Business, in which Wood-carving, Cabinet-making, and Joinery are combined, and in which two principals are necessary for successful management.—Apply, by letter in the first instance, to J. N. 6, Hart-street, Grosvenor-square, London, W.

PARTNER WANTED (FOUNDRY and IRON MERCHANTS, WHOLESALE), to MANAGE either WORKS, LONDON OFFICES, or TRAVELLING. Share according to capital, 1,000*l.* to 2,000*l.*—Apply to Mr. EAMONSON, Iron Merchant, 11, Dowgate-hill.

BIRMINGHAM SCHOOL of ART.—An additional MASTER is REQUIRED, to teach the Higher Classes.—Apply, with testimonials, before the 30th of June, to Mr. LAUNDY, 22, Waterloo-street, Birmingham.

TO ARCHITECTS, SURVEYORS, AUCTIONEERS, &c.—SPECIFICATIONS, ESTIMATES, INVENTORIES, CATALOGUES, and every description of document, neatly and correctly copied, at 1½ per folio of seventy-two words. Plans and drawings of all kinds copied, reduced, or enlarged, on reasonable terms, by FRY & SON, Law Stationers, Lithographers, and Printers, 13 and 14, South-square, Gray's-inn.
N.B. When more than four copies required, a considerable reduction allowed if lithographed.

BRICKLAYER WANTED.—A thoroughly good Man, to Take Piecework to Houses in Walworth.—Apply in the evening 49, Fleming-road, Kennington Park.

BUILDER'S CLERK WANTED. Must be steady and trustworthy.—Apply, stating terms, to Messrs. RAMSER, Builders, Kington, Herefordshire.

GREY STONE LIME and STONE QUARRY BUSINESS.—WANTED, a PARTNER or Two, to join Advertiser in extending Lime Works and Stone Business. The transit to the north, south, east, and west of London far cheaper than any other route.—Address, A. B. S. with name and address, to Messrs. LAMBERT, BERGIN, & PETCH, 8, John-street, Bedford-row, W.C.

TO PAINTERS.
GOOD BRUSH HANDS WANTED. Country general work. Moderate wages given. To suitable men other terms may be offered. State wages required, and references, to HUTTON, Office of "The Builder."

TO SURVEYORS.—The Board of Works for the Wandsworth district are desirous of receiving APPLICATIONS from skilful and competent Surveyors for the APPOINTMENT of SURVEYOR and INSPECTOR of NUISANCES for the Parish of Clapham within their district, at a salary of 230*l.* per annum. The candidate selected will be required to reside within the parish of Clapham, and devote the whole of his time to the duties of his office. His duties will be to superintend personally all the works to be executed in the Parish of Clapham, in connexion with the formation, repairing, and watering of roads and footpaths; the construction, repairing, and cleansing of sewers; the preparing of specifications, plans, surveys, and estimates; and the taking of levels; to attend all meetings of the Board, and of the committee of the parish of Clapham; and generally to advise the Board and the parish committee as to any works necessary to be executed in the Parish of Clapham, under the provisions of the Metropolis Management Acts, and to perform all such duties connected with his Office as the Board may direct. The appointment will be subject to the bye-laws of the Board, and the successful candidate will be required to give security to the amount of 300*l.*—Applications, stating age of applicant, and accompanied by testimonials, are to be sent in under seal, to the Board, endorsed "Application for appointment of Surveyor," by FOUR o'clock in the afternoon of TUESDAY, the 13th inst.—By order of the Board of Works for the Wandsworth district.
ARTHUR A. EX. CORSELLIS, Clerk.
Battersea Rise, Wandsworth, W. June 1, 1871.

THE FARNLEY IRON COMPANY, LIMITED, Farnley, Leeds, are in immediate WANT of an intelligent, practical, and active Man, of unexceptionable character, to TAKE the general SUPERINTENDENCE of their FIRE-CLAY WORKS, at their Beaston Royds Works near Leeds. A knowledge of the manufacture of glazed bricks and terra-cotta ornamental ware essential.—Apply as above.

TO FOREMEN OF PAINTERS.
REQUIRED, in a London Firm, a thoroughly practical Man to TAKE the ENTIRE CHARGE. None but those who have filled a similar situation need apply.—Address, stating terms and where last employed, to No. 904, Office of "The Builder."

TO MILL SAWYERS.
WANTED, a steady, sober, and handy Man, to WORK a CIRCULAR SAW. Must be a good saw sharpener, and used to cutting out stuff for joiners' work. One who could fill up his time at the bench when not working the saw preferred.—Address, stating wages and references, to JOS. CHAPPELL, Builder and Contractor, Holbeach, Lincolnshire.

WANTED, an ASSISTANT, of good experience, to ASSIST in Designing and Laying Out Roads and Buildings on plot of land in the City.—Address, 905, Office of "The Builder."

WANTED, as WORKING FOREMAN a practical Man, thoroughly conversant with joiner's machinery.—Reply fully, by letter, to Messrs. A. RANSOME & CO. 304, King's-road, Chelsea, S.W.

WANTED, a Person, able to ESTIMATE, VALUE, SET OUT, and SUPERINTEND the EXECUTION of MARBLE WORK. Character for ability and trustworthiness indispensable.—Apply, by letter only, stating age, salary, and present employer, to P. X care of Mr. Grant, 1, Riches-court, E.C.

TO ARCHITECTS AND SURVEYORS.
WANTED, in a country town, a thoroughly practical ASSISTANT, to take the entire charge of a small practice and instruct one or two pupils. He must understand his business thoroughly, and be a good land surveyor, and able to assist in business matters generally. Salary 70*l.* Satisfactory references absolutely necessary.—Address, C. G. office of "The Builder."

WANTED, for a Builder's Office in the suburbs of London, a CLERK of good address and a fair draughtsman.—State terms expected to A. B. 210, Strand.

WANTED, by an ARCHITECT in Dublin, a thoroughly qualified ASSISTANT. Must be competent to take charge in the absence of the principal; well up in Gothic design and a rapid draughtsman, perspective and geometric. None but persons of experience and ability need apply.—Address, with testimonials (copies), stating references, age, and salary; expected to ARCHITECT, 175, Great Brunswick-street, Dublin.

WANTED, a FOREMAN of JOINERS: one who can make working and detail drawings, has a knowledge of steam machinery. The situation will be a permanency. Wages 36*s.* per week.—Address, stating age and references, to J. L. GLASSCOCK, Builder, Bishop Stortford.

TO JOINERS.
WANTED, TWO BENCH HANDS. All applicants should be men of experience, steady, and capable of taking charge of a small job occasionally. Men accustomed to a good country shop preferred. — State wages and references to B. M. G. I. Post-office, Stevenage, Herts.

WANTED, in an Architect's Office, a thoroughly well-qualified ASSISTANT, who is also a correct and expeditious quantity measurer. May lead to a permanent engagement.—Apply, stating terms, qualifications, and with special testimonials, to E. Mr. Grasharth, Bookseller, Bradford, Yorkshire.

WANTED, a FOREMAN to SUPERINTEND a BUILDING in London. First-class references will be required as to character, ability, &c.—Address, stating age, wages, and where last employed, No. 912, Office of "The Builder."

WANTED, a good WORKING FOREMAN of CARPENTERS and JOINERS for a Job.—State wages required and reference to F. & G. Post-office, Sudbury, Suffolk.

WANTED, by a respectable Young Man, a SITUATION as CLERK, TIMEKEEPER, or Storekeeper. Willing to make himself useful. Used to the jobbing trade.—Address J. B. 154, Walton-street, S.W.

TO PLUMBERS AND DECORATORS.
WANTED, by a steady, experienced PLUMBER, a constant SITUATION. Willing to fit up his time with the other branches. Good references.—Address, E. H. 5, Frederick-street, Hampstead-road.

TO ARCHITECTS AND CIVIL ENGINEERS.
WANTED, a RE-ENGAGEMENT, as CLERK of WORKS or GENERAL ASSISTANT, by a thoroughly practical Man. Has superintended the erection of several important public and private buildings. Is a neat and rapid draughtsman, well up in working, detail, and finished drawings, &c. First-class references and testimonials from Government and private offices for the last fifteen years. Aged 34.—Address, F. H. 59, Peacock-street, Gravesend.

TO GRANITE COMPANIES, &c.
WANTED, a RE-ENGAGEMENT, by an efficient GENERAL FOREMAN or MANAGER of GRANITE WORKS and QUARRIES. Thorough knowledge of all its branches (including polishing works). Good estimator, with knowledge of market value. First-class testimonials.—Address, MASON, 135, Bayham-street, Camden Town, London, N.W.

WANTED, EMPLOYMENT, by a practical CARPENTER and JOINER, who has a good knowledge of accounts and specifications. Used to all kinds of fittings, jobbing generally; also blinds.—Address, Z. 18, Augusta-terrace, Grosvenor-park, S.E.

WANTED, a constant **SITUATION,** as GRAINER and PAPERHANGER, and fill up time in Painting and Glazing.—Address, W. H. 10, Asgill Cottages, Richmond, Surrey.

WANTED, by a steady, persevering Man, a RE-ENGAGEMENT, as FOREMAN of WORKS, to Take Charge of a Job. Well acquainted with the management of men, and getting out working drawings. Carpenter by trade. Good references.—Salary moderate.—Address, in the first place, to 928, Office of "The Builder."

TO BUILDERS AND OTHERS.

WANTED, by a STAIRCASE HAND, STAIRS, RAILS, or JOINERS' WORK, or as SHOP or JOB FOREMAN. Town or country.—Address, T. E. 4, South Wharf-road, Paddington.

TO MASTER BUILDERS AND DECORATORS.

WANTED, a CONSTANT SITUATION as THREE-BRANCH HAND. Can repair roofs, tiles, or slate, or fix drain-pipe. Suitable to a small master, or the owner of a lot of houses.—Address, Y. Z. 18, Hatcham-terrace, Hatcham-road, O'd Kent-road.

TO BUILDERS AND PLUMBERS.

WANTED, by the Advertiser, who is a good PLUMBER and GAS-FITTER, a SITUATION. Can do plain zinc-work. Good references.—Address, "SWEET," 27, Goldington-street, St. Pancras, N.W.

WANTED, a RE-ENGAGEMENT, by a thoroughly competent BUILDER'S CLERK. Well up in the routine of the office, preparation of plans, taking out quantities, measuring all kinds of work, estimating, &c. Practically acquainted with the trade. First-class references.—Address, 905, Office of "The Builder."

TO WRITERS, PAINTERS, &c.

WANTED, a SITUATION, as Improver in the WRITING. No objection to fill up time at painting. Address, H. F. 6, Duke's-lane, Kensington, W.

WANTED, by the Advertiser, aged 24, a SITUATION as DETAIL DRAUGHTSMAN, or COPYING CLERK. Can set out carpenter's or joiner's work, and would make himself generally useful. Country preferred. A good reference given.—Address, J. SMITH, No. 9, Dame-street, Packington-street, Islington, N.

TO PLUMBERS AND BUILDERS.

WANTED, by the Advertiser, who is a first-class PLUMBER, a SITUATION or JOB, as PLUMBER, or as THREE-BRANCH HAND. Good references if required. Town or country.—Address, E. B. 19, Westall-street, Elfin-road, Wyndham-road, Camberwell S.E.

TO BUILDERS, PLUMBERS, &c.

WANTED, by a good Plumber, a SITUATION or JOB. Understands bath work, &c. Good references.—Address, A. Z. 87, Shaftesbury-street, New North-road, Hoxton, N.

TO PLUMBERS, BUILDERS, AND OTHERS.

WANTED, a SITUATION, by a respectable Man, as good practical PAINTER and GLAZIER. Well understands all kinds of bath, closet, and pump work of every description. Willing to make himself generally useful.—Address, J. K. 5a, Chapel-street, Edgware-road, W.

TO PLUMBERS AND BUILDERS.

WANTED, a SITUATION, by a first-class PLUMBER, GASFITTER, and ZINCWORKER. Can fill up time in painting. Town or country.—Address, J. D. 2, Anger-road, Primrose-hill, N.W.

TO BUILDERS.

WANTED, by the Advertiser, a Joiner by trade, a RE-ENGAGEMENT as SHOP FOREMAN. Accustomed to all kinds of machinery in the building trade, thoroughly competent in making out working drawings, &c.—Address, T. E. 126, Warwick-street, Pimlico, S.W.

TO ARCHITECTS.

WANTED, a RE-ENGAGEMENT, as ASSISTANT. Excellent references.—Address, E. M. Post-office, Pilton, North Devon.

TO ESTATE AND HOUSE AGENTS.

WANTED, a SITUATION, as ESTATE and HOUSE CARPENTER, by a practical Carpenter and Joiner. Good references.—Address, A. B. 37, Walton-street, Chelsea.

TO BUILDERS.

WANTED, by a GENERAL FOREMAN, a RE-ENGAGEMENT (Carpenter by trade).—For references, &c. address, A. B. care of Mr. Groves, 6, Brewer-street, Pimlico, S.W.

TO ARCHITECTS AND SURVEYORS.

WANTED, by a first-class ASSISTANT, an ENGAGEMENT. Has had considerable experience in all branches of the profession, and is well up in perspective and artistic colouring. Will render occasional assistance.—Address, J. J. 69, Upper Kennington-lane, S.E.

TO ARCHITECTS, SURVEYORS, AND BUILDERS.

WANTED, a SITUATION, as CLERK. Good penman, fair knowledge of quantities, and can trace and copy drawings well. Aged 25. Moderate salary.—Address, 878 Office of "The Builder."

WANTED, a RE-ENGAGEMENT as BUILDER'S FOREMAN, by a practical Man (Joiner). Well up in setting out work and looking after men.—Address, O. P. Post-office, 774, Old Kent-road, S.E.

WANTED, by a Young Man, a PLUMBER, a SITUATION or JOB. No objection to fill up time in painting.—Address, G. W. 1, Broadwall, Stamford-street, Blackfriars, S.E.

WANTED, by an experienced Man, a SITUATION as WORKING FOREMAN. Carpenter and joiner. Well up in stairs, shop-fronts, boxing shutters, sashes and frames, and the general work of a building or to take the work by the piece. Labour only. Been accustomed to machinery.—Address, T. T. 19, New-street, Kennington Park-road.

TO BUILDERS.

WANTED, a RE-ENGAGEMENT, by a thoroughly practical and experienced SHOP FOREMAN of JOINERS. Good draughtsman, and well used to machinery.—Address, T. M. 8, Alfred-street, Roman-road, Barnsbury, N.

WANTED, a SITUATION, as PLUMBER, GASFITTER, and ZINCWORKER. No objection to fill up time, if required, with glazing, &c.—Address, X. Y. Z. 356, King's-road, Chelsea, S.W.

WANTED, a SITUATION or JOB by a first-class DECORATIVE ARTIST, Designer, Writer, and Grainer, as FOREMAN or otherwise. Willing to make himself generally useful. First-class references.—Address, A. Z. 20, Star-street, Barking-road, E.

TO ARCHITECTS.

WANTED, a RE-ENGAGEMENT, in Town, by an experienced DRAUGHTSMAN. Unexceptionable references.—Address, ARCHITECT, 27, Grosvenor Mansions, Victoria-street, Westminster.

WANTED, by a Young Man, a SITUATION as PLUMBER or THREE-BRANCH HAND.—Address, J. T. L. 27, Gladstone-street, Battersea Park, S.W.

WANTED, a RE-ENGAGEMENT, as CLERK of WORKS, GENERAL FOREMAN, or Charge of a Job, by an energetic, practical Man. Has a thorough knowledge of every branch of the building trade, and of the nature and qualities of all building materials. Has had the entire charge and management of large jobs and public works the last twenty-five years. Unexceptionable reference and testimonials from London architects and builders.—Address, N. V. W. care of Mr. Rolfe, 17, St. John's-wood-terrace, N.W.

TO NOBLEMEN, GENTLEMEN, ESTATE OWNERS, &c.

WANTED, an ENGAGEMENT, as DRAUGHTSMAN, BUILDING'S ACCOUNTANT, &c. Just completed a similar appointment (3½ years); also, quantities and estimating. Very good testimonials. Aged 26.—Address, F. C. M. 40, Torriano Avenue, Camden-road, N.W,

TO BUILDERS.

WANTED, a RE-ENGAGEMENT as SHOP or GENERAL FOREMAN. Town or country. Just finishing a large job in Town. Good reference.—Address, G. W. 18), King's-road, Chelsea, S.W.

WANTED, a SITUATION, as WORKING SHOP FOREMAN of JOINERS, SHOP and YARD FOREMAN, WALKING FOREMAN, or FOREMAN on a JOB. A good general knowledge of all the branches of the trade; fair draughtsman; experienced in church restoration, alterations, dilapidations, and general repairs.—Address, THOS. HALL, 10, North News, Gray's-inn-road, W.C

TO ARCHITECTS, &c.

WANTED, a RE-ENGAGEMENT, temporary or otherwise. Is a good draughtsman and colourist. Well up in perspective, and the preparing of drawings for competition, &c. Good references. Salary moderate.—address, M. A. 63, Southampton-row, W.C.

WANTED, a SITUATION, as TIME and STORE KEEPER, or JUNIOR CLERK. Can keep books, and used to office duties. Three years' character.—Address, J. S., J. No. 11, Newland-street, Eaton-square, S.W.

TO CONTRACTORS AND OTHERS.

WANTED, a RE-ENGAGEMENT, by a Young Man, with one of the above. Well up in all office work. Eleven years' first-class references. Salary moderate. No objection to the country.—Address, R. C. H. Post-office, Church-street, Spitalfields, E.

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WANTED, by a Young Man, a SITUATION as PLUMBER, PAINTER, and GLAZIER.—Address, H. B. K. Mr. Scholls, 10, Kensington-road, S.

WANTED, in a Nobleman's or Gentleman's family, a SITUATION as HOUSE CARPENTER. Understands upholstery and French polishing. Good reference.—Address, D. Y. Post-office, Abbotts Ann, Hants.

TO ARCHITECTS, &c.

WANTED, by the Advertiser, aged 22, a RE-ENGAGEMENT as ARCHITECTURAL ASSISTANT. Six years' experience, with undeniable references.—Address, X. care of Mr. Durham, 81, Hyde street, Winchester.

TO ARCHITECTS AND OTHERS.

WANTED, by a good DRAUGHTSMAN, EMPLOYMENT.—Address, X. Y. Z. 70, Great Percy-street, Pentonville, W.C.

WANTED, a SITUATION, as THREE-BRANCH HAND, by a steady Man. Four years with last employer.—Address, J. J. 42, Broughton-street, Queen's-road, Battersea, S.W.

WANTED, a RE-ENGAGEMENT, as FOREMAN of WORKS, town or country. Mason by trade. Good references.—Address, 870, Office of "The Builder."

TO BUILDERS AND THE TRADE.

WANTED, by a practical Man, a SITUATION, as BELLHANGER, LOCKSMITH, and also Electric Bell Work, Speaking-pipes, &c.—Address, H. T. S. 57, Wardour-street, Oxford-street, London, W.C.

WANTED, by the Advertiser, a JOB, or CONSTANCY, as PLUMBER, or THREE-BRANCH HAND. Town or country.—Address, A. E. 14, Waverley-road, Harrow-road, W.

WANTED, by a middle-aged Man, an ENGAGEMENT as CLERK of WORKS or FOREMAN of a BUILDING, in town or country. Well experienced. Joiner by trade. Good references from last employers.—Address, The Housekeeper, 15, Fish-street-hill, E.C.

TO ARCHITECTS, SURVEYORS, AND BUILDERS.

THE Advertiser, a young Architect and Surveyor, in practice, not having sufficient work to keep him employed, would be glad to PREPARE DRAWINGS of any description, take off Quantities or Measure up Work, post up Builders' Books, or Estimating. Perspectives prepared in the best manner, finished in ink or colour, on very moderate terms.—Address, ARCHITECT, 4, Denbigh-villas, Archer-street, Bayswater, W.

TO ARCHITECTS AND OTHERS.

THE Advertiser seeks a RE-ENGAGEMENT as JUNIOR ASSISTANT or CLERK. Fair draughtsman and colourist. Trace neatly and expeditiously.—Address, B. 51, Red-hill-street, Regent's Park, N.W.

TO SURVEYORS, &c.

THE Advertiser is desirous of obtaining a PERMANENT ENGAGEMENT. Good Leveller, Surveyor, and Draughtsman. Excellent references. Salary moderate.—Address, A. Z. Post-office, Wymondham, Norfolk.

THE Advertiser is in WANT of a SITUATION as WRITER, GRAINER, &c. or to TAKE the CHARGE of PAINTERS. Is well acquainted with the mixtures of colours, &c.—Address, A. B. 5, Marlborough-road, Essex road, Islington.

TO ARCHITECTS AND SURVEYORS.

THE friends of a respectable country Youth, of most attentive and industrious habits, and kind disposition, wish to place him as a RESIDENT PUPIL with an ARCHITECT and SURVEYOR, where he would be promptly and thoroughly educated in the profession. A moderate premium will be paid.—Address, G. Office of "The Builder."

TO STATUARY MASONS, CONTRACTORS, TIMBER MERCHANTS, AND OTHERS.

THE Advertiser, who is conversant with drawing and artistic work, qualities and measurement of timber, seeks an APPOINTMENT for the same. Testimonials satisfactory, and security if required.—Address, W. W. care of Mr. R. Wells, Clontarf House, Russia-green, Lewisham, S.E.

THE Advertiser, who has had twenty-five years' experience on large public works, barracks, coast defences, railways, and sewers, as CLERK and TIMEKEEPER, is a good arithmetician, cube and square, measure all kinds of work, and knows prices, would be glad of any EMPLOYMENT in office or out. Salary not so much an object. High testimonials.—Address, J. C. 38, George-street, Euston-square, N.W.

TO ARCHITECTS AND OTHERS.

SITUATION, WANTED, to TRACE DRAWINGS, &c. by a Young Man, aged 21.—Address, E. M. 179, Pentonville-road, N.

RE-ENGAGEMENT WANTED, as GENERAL FOREMAN or CLERK of WORKS. Good references can be given.—Address, 906, Office of "The Builder."

TO ARCHITECTS AND ENGINEERS.

REQUIRED, by a first-class CLERK of WORKS, of the highest practical ability and experience, who has for the last twenty years been engaged on large public and other extensive works, a fresh ENGAGEMENT. The highest of testimonials.—Address, O. P. Post-office, Dorset-place, Clapham-road, S.W.

TO ARCHITECTS.

CLERK of WORKS or GENERAL ASSISTANT.—WANTED, a RE-ENGAGEMENT by a thoroughly practical Man. Can prepare working and detail drawing, specification, and bills of quantities. Has superintended several large works.—C. W. Post-office, Sleaford, Lincolnshire.

AN experienced PLUMBER is in WANT of a SITUATION or JOB. Can fill up time at painting, glazing, gas-fitting, &c.—Address, PLUMBER, 29, Albert-terrace, Knightsbridge.

TO ARCHITECTS.

MR. KEDGE, of 3, Titchborne-street, Cambridge-square, W. wishes to meet with an ENGAGEMENT, or with work to do at home. Is well accustomed to prepare competition and working drawings, and tracings on cloth. Can give good references.

TO ARCHITECTS, CONTRACTORS, BUILDERS, &c.

EMPLOYMENT is WANTED in OFFICE or OUTWORK, under the above, by one aged 24 years, who has been connected with the building trade for seven years, and seen many large contracts carried out.—Address, A. U. Z. Post-office, Erith.

AN ARCHITECT and SURVEYOR'S ASSISTANT, of nine years' experience, six in country and three in town, and well up in every branch, desires a RE-ENGAGEMENT. Salary 2½ guineas per week.—Address, E. J. 89, Leadenhall-street, E.C.

A PRACTICAL LONDON FOREMAN will be open to an ENGAGEMENT on the 20th as SHOP FOREMAN of JOINERS, GENERAL FOREMAN, or Charge of a Job. Is a good draughtsman, quick at setting out work, making working and detail drawings. Has a good knowledge of machinery. First-class references.—J. H. M. Foreman, Hockrill, Bishop's Stortford.

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A SUPERIOR DRAUGHTSMAN, and expeditious GENERAL ASSISTANT, is at liberty to accept a temporary or permanent ENGAGEMENT. Well qualified in design, perspective, competition work, and the usual duties of the profession. — Address, ARCHITECT, 58, Stanley-street, Eccleston-square, S.W.

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A SITUATION WANTED, by a Young Gentleman, who has been articled for three years in an Architect and Surveyor's office, and wish further experience. He is a good draught man, and well up in measuring and levelling. Has a great taste for drawing, and is quick and correct at figures. Can have excellent testimonials as to position, ability, and character. Would have no objection to the country, or to go abroad.—Address, G. H. care of Messrs. Cox & Son, Ecclesiastical Warehouse, 28 and 29, Southampton-street, Strand, W.C.

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A BUILDER'S CLERK, disengaged after 6:30, desires to RECEIVE INSTRUCTIONS in QUANTITIES, two or three evenings a week.—Address, stating terms, X. X. 28, Gray's-inn-road, W.C

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A FIRST-CLASS ARCHITECTURAL DRAUGHTSMAN and DESIGNER OFFERS his SERVICES. Artistic perspectives, competition, working and detail drawings, &c. Lessons in practical drawing and perspective. — Address, ARCHITECT, care of Mr Newnham, 91, Lamb's Conduit-street.

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AN ARCHITECT and SURVEYOR, who has been in practice in London for some years, is desirous of entering into PARTNERSHIP with another Architect in good practice, or would be willing to Undertake the Entire Management of an Office.—Address, ARCHITECT, care of Mr. W. Lake, 21, Great Russell-street, W.C.

A GOOD DRAUGHTSMAN desires EMPLOYMENT. Can design, make perspective and working drawings, &c. Understands Gothic. Terms moderate.—Address, 872, Office of "The Builder."

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